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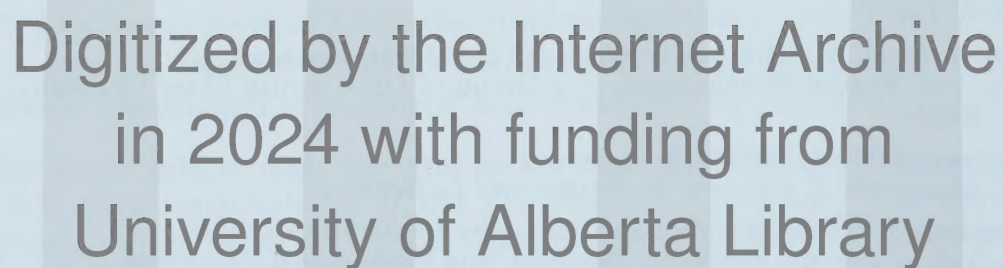
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## ERRATA

### March 1976 issue of AJER:

Article by Mosychuk, Blowers, Penner & Weekley. Contents of Tables 2 and 3 (pages 48 and 49) were interchanged.



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M. R. LUPUL

*The University of Alberta*

## The Portrayal of Canada's 'Other'<sup>1</sup> Peoples in Senior High School History and Social Studies Textbooks in Alberta, 1905 to the Present

*The article below analyzes the high school Canadian history and social studies textbooks and teaching materials required or recommended by Alberta's Department of Education since 1905 with the focus on the manner in which groups such as the Native peoples, the Métis (including Louis Riel), the Orientals, and the Continental immigrants (especially the southeastern Europeans), among others, have been discussed (or ignored). Two major findings are the skimpy treatment given to the impact on Canada's cultural development and its identity as a nation of the massive immigration of peoples to western Canada prior to the first world war and, in particular, the testiness with which ethnicity (and especially language) has been handled since 1970. The materials used in recent years have failed miserably to reconcile the professed commitment to cultural pluralism with the linguistic and cultural aspirations of all but the French among the non-Anglo-Celtic peoples. (Dr. Lupul is Professor of History of Canadian Education in the Department of Educational Foundations.)*

In this paper Canada's largest minority peoples, the French and the Anglo-Celtics, are excluded, as are all books not authorized or recommended as references in history and the social studies at the senior high school level—Standards VI-VIII (Grades IX-XI) to 1910, Grades IX-XII from 1911 to 1935, and Grades X-XII after September 1936.<sup>2</sup> Although confined to the Province of Alberta, it is assumed from an examination of several texts in use in Saskatchewan, Manitoba, and Ontario that the findings of this paper may be transferred to other English-speaking provinces.

Canada's 'other' peoples have more than doubled since 1901, their percentage increasing from 12.25 to 26.73. The largest gains have been in Ontario (13.38 in 1901 to 31.16 in 1971) and Manitoba (29.29 to 49.97). The change in Quebec (2.21 to 10.97) has also been significant. The Maritime



provinces have experienced the least fluctuation and Saskatchewan, Alberta, and British Columbia the most. Saskatchewan's 'other' peoples, 53.19 per cent in 1901, dropped to 41.08 (1911) and rose steadily thereafter to 53.16 (1961), dropping slightly to 51.80 (1971). Alberta's pattern is similar: 46.02 (1901), 37.01 (1911), 34.95 (1921), 48.57 (1961), 47.40 (1971); and British Columbia's varies only slightly: 37.88 (1901), 29.77 (1911), 24.00 (1921), 36.54 (1961), 37.70 (1971).<sup>3</sup> The discussion in Alberta will be divided into three parts: (1) the period to 1936, when history was replaced by social studies; (2) the period 1936-1960, when Quebec's 'Quiet Revolution' began in earnest; and (3) the post-1960 period.

### *The Period to 1936*

Before 1936, three main texts were used in Alberta's high schools to teach Canadian history: *The History of the Dominion of Canada* by W.H.P. Clement, an Ontario lawyer whose volume won the "Dominion History Competition" in 1896<sup>4</sup> and was used until 1908<sup>5</sup>; *The Story of the Canadian People* by D. M. Duncan, M. A., assistant-superintendent of schools in Winnipeg,<sup>6</sup> used until 1924<sup>7</sup>; and the *History of Canada* by W. L. Grant, principal of Upper Canada College and former "Professor of Colonial History" at Queen's University,<sup>8</sup> used until 1938.<sup>9</sup>

Speaking generally, neither of the three histories has much to say about Canada's 'other' peoples, apart from "The Indian Tribes of Canada" (Clement, chap. II), "The Native Races" (Duncan, sec. 2), "The Aborigines" (Grant, chap. II), and the Métis and Louis Riel, who come in for considerable unflattering attention. Duncan, influenced perhaps by Buckley and Robertson's *High School History of England and Canada*<sup>10</sup> refers to "the mound-builders" as Canada's first peoples, antedating the Indians and Eskimos (p. 4), even though Clement had dismissed all pre-Indian history as resting on "mere tradition" (p. 9). Grant concludes that "the silent, vanished race of the Mound-Builders is a fable of the poets," the mounds having been erected by the Indians themselves (p. 9).

Of the native peoples, the "simple but picturesque" Eskimos or "Esquimaux" are clearly preferred: "Being of a very peaceful disposition, they offered no opposition to European exploration and settlement" (Clement, p. 12). According to Grant, in the eighteenth century the Moravian Brothers, "gentle Christian missionaries from Europe, settled among them, and gradually effected a most remarkable change in their lives. They cast their cruelty and love of war aside, and became the peaceful race we know today, fighting only with nature and the wild beasts, living quietly in little settlements, with names like Nain and Hebron, taken from the Bible" (pp. 20-21). Only Duncan's straightforward account ends in insult: "The Eskimos are described as dark in complexion, although one traveller says that if their faces were well washed they would be found to be white" (p. 6)!

It is the "savage" and "dusky" Indians with their "rude political system" and "rude traffic as middlemen" (pp. 10-11) who bear the burden of Clement's white, European, Christian supremacy. Thus the staple food was Indian corn eaten in different styles of which "we have many amusing accounts." "The usual form was 'sagamite,' a kind of porridge mixed with scraps of game or fish" (p. 11). "To gorge in summer and starve in winter



seems to have been their usual lot" (p. 12). Indian "character and habits," in particular their religion, are roundly scored:

To the early Europeans the Indian was not an attractive figure. They describe him as of unclean habits and without morals. Master of woodcraft, he was seen at his best when hunting. Upon the war-path he was cruel, tomahawking, scalping and torturing with fiendish ingenuity. A stoic fortitude when himself tortured was about his only heroic quality. In his own village among his own clansmen he spent his time in gambling, story-telling, or taking part in some rude feast. In his domestic life the Indian was not without virtues, and his squaw and papooses were treated with a somewhat rough and careless kindness. To his tribe he was usually faithful, though to his foes false and crafty. Indian religion was purest superstition, peopling forest, stream and air with supernatural beings, both good and evil. Every manifestation of nature was the work of some particular deity. Of one God over all he seems to have had no idea, and his notion of heaven was of a happy hunting-ground where departed spirits would have full enjoyment of every sensual and savage desire (pp. 12-13).

Duncan, and especially Grant, give the Indians more extensive and generally more favorable treatment, though derogatory remarks surface occasionally, especially when war or religion is discussed. Thus Duncan views the Micmacs, the first converts to Christianity, favorably, but the Montagnais eke out "a wretched existence, often in a state of starvation which drove them to cannibalism" (pp. 6-7). Huron women remain "drudge(s)," "squaws," and (quoting Champlain) "mules" (p. 13). Male idleness, gambling, and feasting continue to annoy, but Huron hospitality and good humor are praised, though the jokes are "not always free from coarseness" (p. 15). In religion the Indians are "very superstitious, having strange ideas about nature": "Thus an Indian has been known to make a long speech of apology to a wounded bear; he has also been known to treat with great care the bones of a dead beaver for fear of offending the living brothers" (p. 15). "The savage," according to Grant, "is proverbially fickle; his empires are usually held together only by a despot, on whose death they break up." Still, "the political genius" of the Iroquois is admired (pp. 12-13), even though Duncan dislikes the practice of having prisoners of war adopted by relatives of slain warriors: "Even white men, French and English, in this way became members of an Indian tribe, and in the enjoyment of the freedom of forest life refused to return to civilisation, even when they had a chance to do so" (p. 10)—clearly the forerunners of the *coureurs de bois*, whom Duncan, as we shall see, disliked intensely. The fairest description of the Indian is by Grant:

The Indian had a very strict code of manners. In public he was haughty and dignified . . . . To display any emotion was considered the mark of a woman. Cases are known of an Indian tortured by fire all through the night, and making no sound save to sing his death song or throw scornful taunts at his butchers. But when at home the Indian threw off his gravity. In the wigwam he was cheerful, talkative, gossipy; fond of telling stories and of making jokes; fond of games of chance and of skill (p. 17).

Duncan grants that "In his treatment of his ignorant neighbour the settler was not always just, and his injustice drew upon him the vengeful enmity of a foe that never forgot an injury" (p. 17). Jacques Cartier's seizure of several natives, including Chief Donnacona who had befriended him on his second voyage in 1536, was a case in point. From "a very hospitable reception" in 1536, Clement writes, Cartier returned to France



with Donnacona and some of his tribe whom he had "treacherously seized." By 1541, Donnacona had died and Cartier was consequently received with "some distrust" among "the now unfriendly Indians" (p. 7). Grant minimizes the deception: "By what seems to us treachery, but what to the sailors of the day was no more than the ordinary way of treating savage races, Cartier lured on board Donnacona, the two Indians whom he had taken in the previous year, and about a dozen others." The captives were "not ill-treated or sold into slavery . . . but were presented to the King at Court, kindly treated, and instructed in the Christian religion. But the red man pined for the wild life of the forest and stream; to some, the vices of the old world proved all too pleasant; six years later all were dead, save one little girl of about ten years old" (pp. 30-31).

As between the missionaries and the Indians, the former get all the best of it. The "energetic" Jesuits, "a remarkable order of priests" (Duncan, p. 46), are in a class by themselves. Entrusted with the task of converting "the savage tribes to Christianity," "with a zeal beyond all praise, these heroic priests were ever ready to face a lonely life in remote and filthy Indian villages or to meet death in shape of direst torture, all—in the words of their order—to God's greater glory" (Clement, p. 24). The priests are invariably "devoted" (Duncan, p. 55) and "hardy," and the natives "awestricken" before the elevation of "the Host" (*ibid.*, p. 57). But the Huron boys at the Jesuit seminary in Quebec were apparently exceptions: "One boy ran away, two ate themselves to death, and a fourth was carried off by his father" (*ibid.*, p. 68)! The Jesuits' aim, realized for a time in Paraguay, according to Grant, was to establish "a native Christianity," "in absolute seclusion from all white influence save their own," an ideal "strengthened by desire for trade—much easier with peaceful vassal states than with the independent and savage nomads . . ." (p. 50).

Upon the *coureurs de bois*, too, the weight of Victorian opprobrium falls heavily. Clement is least offended, terming the men "picturesque," "adventurous spirits" seeking to escape both the strict religious life of the settlements and the fur trade monopoly of the Company of One Hundred Associates. "They adapted themselves to the Indian mode of life, and soon became as skilled in wood craft as their dusky friends. Many of them married Indian maidens, and to this day their half-breed descendants are to be found in northern Ontario, Manitoba and the North-West" (p. 24). Duncan, despite an avowed preference for "private enterprise" (p. 134), greatly disliked the greatest of the free traders, the *coureurs de bois*.

Such was the freedom of life in the forest, where they consorted with the savage children of nature, that the return of a party of *coureurs de bois* to Montreal was usually the occasion of unrestrained revelry. Every house, we learn, was turned into a place of drinking. The visitors, clad in costumes as scanty as those of the most uncivilised savages, decked out in ornaments French and Indian, gave themselves up to an excess of drinking and gambling. When the last of their dearly earned furs had been thrown away as the price of their entertainment, they plunged again into the woods, to take up once more the wild life which a brief season of dissipation had interrupted (pp. 135-36).

To Grant, the *coureurs de bois* are romantic figures and peculiarly French:

... there seems to be something wild and roving in the French character, which gives them a greater sympathy with savage races. Hence there grew up a class



of men known as *coureurs-de-bois*, who roamed by lake and stream in quest of furs, grew wild and cruel as the Indians themselves, and in many cases took to wife one or more of the soft-eyed daughters of the forest. This was not unknown among the English; but as a class the *coureurs-de-bois* were French and French only (p. 70).

The first, very brief mention of 'other' whites is by Clement. By 1767 five out of fourteen townships in what is now New Brunswick had been settled by New Englanders and among the eleven hundred people were "a number of Germans, who settled (1765) along the banks of the Petitcodiac River" (p. 103). While the point is ignored by Duncan and Grant, the latter does indicate that as early as 1751 "about 2000 stout-hearted German Protestants came out [to Nova Scotia], most of whom went seventy miles south-west to found the town of Lunenburg, where after the Seven Years War they were reinforced by other Germans brought in by British officers" (p. 235).<sup>11</sup> By 1871, 7.72 per cent of Canada's population was descended from 'other' white ethnic groups, mainly German and Dutch,<sup>12</sup> but references to it in high school histories are rare, probably because, as with the Dutch Loyalists, the first who came "had little to distinguish them from their neighbours and melted imperceptibly into the Canadian scene."<sup>13</sup> Only Clement specifically refers to white United Empire Loyalists of non-Anglo-Celtic background: "In these Quinte settlements there was a large admixture of the old Dutch families from the banks of the Hudson and Mohawk rivers, and not a few of the same stock settled on the Niagara frontier" (p. 125), but from names like Lunenburg, Mecklenburg, Nassau, Amherstburg, Williamsburg, and Sophiasburg in Upper Canada it is clear that attention to this aspect of Loyalist settlement could have been more extensive, had the writers been less mesmerized by the Anglo-Celtic majority.

Each text deals extensively with the 1763-65 Indian "conspiracy of Pontiac" (Duncan, p. 206), or "Pontiac's war" (Grant, p. 117), the settlement in 1784 of the "Indian Loyalist" Mohawk Chief Joseph Brant (Thayendanegea), and the Shawnee Chief Tecumseh, that "staunch and able ally of the Canadians" (Duncan, pp. 220, 263) and "far-seeing statesman" (Grant, p. 144) who died "a brave and chivalrous warrior" (*ibid.*) at Moravian-town, Upper Canada, in 1813. Duncan alone saw nation-building potential in the 1812 war: "In the hour of danger Canadians of all nationalities, English, Scotch, Irish, French, and German, had united to repel a common enemy. When the war was over, a new spirit prevailed from Halifax to Michilimackinac. Upon the battle-fields of the late war the Canadian nation had its birth" (p. 278). But, inexplicably, the "brave and chivalrous" Indians are now nowhere in sight! Most, in any case, would soon be on reserves, a sign to Grant that (along with the vote "under certain restrictions") they were well-treated in Canada (pp. 231, 420). "As a result of the honesty and justice of our treatment of the Indians, we have had none of the terrible wars which have cost the United States so much blood and treasure" (p. 232).

Canada's Blacks were also well-treated. According to Clement, a bill against slavery was introduced in Lower Canada in 1793, "but for some reason failed to pass." In 1800, however, the Court of King's Bench in Montreal held slavery to be illegal, "but we hear of slaves there as well as in



the other provinces for some years after that date." Upper Canada put an end to slavery in 1793. "In all the provinces the few slaves who were brought in by Loyalists . . . were apparently content to stay and share their masters' lot. The unhallowed institution, however, never took root in our soil, and it hardly needed legislation to bring it to an end. An Imperial Act passed in 1833 abolished slavery throughout all British dominions" (p. 144). Grant was equally magnanimous. In Upper Canada's first session in 1793 a law forbade the introduction of slaves and provided for the gradual liberation of those already present. "It is not probable that we should ever have had many slaves in a country with so cold a winter, but some had been brought in by the Loyalists and this early Act shows a noble spirit of humanity" (p. 180). The rest, however, including "Separate Schools for Coloured People" in Essex and Kent counties after 1840,<sup>14</sup> is presumably of no consequence.

But if the Blacks received little attention, the same cannot be said of the Métis in western Canada. Clement discusses the "Nor-Westers" and the events leading up to the "lamentable collision" (p. 232) at Seven Oaks dispassionately; only when he comes to Louis Riel do his feelings begin to show, and even then the resident officials (the factors and traders) of the Hudson's Bay Company are blamed for the rebellion: "It has been freely charged that they secretly encouraged the French half-breeds in their lawless proceedings" (p. 316). While disturbed by events at Fort Garry, he criticizes Riel only after Scott is shot:

Among the prisoners was a young man named Thomas Scott, against whom, it is said, Riel had a personal grudge. Scott was charged with striking his guard, tried by court-martial . . . and sentenced to be shot . . . In spite of every effort . . . to shake Riel's cruel purpose, the sentence was carried out. In Canada the news of this cold-blooded murder created intense indignation . . . (pp. 319-20).

However, the second appearance of "the rebel leader, Riel" in 1885 is treated with an almost boring recitation of the salient facts (pp. 338-39).

Duncan is most annoyed with Riel, probably because of his dislike of the life-style of the *coureurs-de-bois* and *voyageurs*, the latter being men of the North-West Company who were of "a more lawless character and less under the control of their employers" than were the employees of "the English Company" (p. 251). Not surprisingly, news of the Seven Oaks incident was "the signal for fresh rejoicing" (p. 323) at Fort William, the main trading centre of "the Canadian Company" (p. 251):

The yard before the main building presented a wild scene. Here men of every nationality, of every creed, met. Traders and soldiers, mingling with half-breeds and Indians, were encamped in the open. Dancing, drinking, and singing they made day and night hideous with their revelry (pp. 323-24).

Upon this scene of carousing, "the indignant nobleman," Lord Selkirk, descends like an avenging angel, bringing with him retribution and peace (p. 324)—a peace occasionally challenged but seriously disturbed only by Louis Riel.

Riel was the son of a white father and a half-breed mother, and had been educated in Montreal for the priesthood. Fluency of speech and magnetism of manner gave him ready control over his compatriots; unchecked ambition and extraordinary vanity blinded him to the folly of resisting the authority of the Dominion. There was no one in the colony to restrain his madness.



[After McDougall's retreat] . . . there was every prospect of a bloodless settlement of the difficulty, when a sudden fit of madness on Riel's part precipitated a tragedy. Among some prisoners whom the latter had thrust into Fort Garry, as enemies of the "Provisional Government," was a young Ontario immigrant named Thomas Scott. This unfortunate youth, Riel picked out to be his instrument in terrorising his opponents. Court-martialled and condemned upon the charge of treason, Scott was led out before the walls of Fort Garry and shot. The news of this brutal murder raised a storm of indignation in eastern Canada. . . . At the approach of the troops all military ardour and pride of office died down within Riel's breast. He promptly fled from the scene of his transient glory to find a refuge in the United States (pp. 350-51).

Settlement soon increased: "Many farmers from eastern Canada moved west, while from Europe came an ever increasing number of colonists, of British, Scandinavian, and German stock" (p. 367). As "the hated civilisation" crept up on the "*Métis* or half-breeds" and their "near relatives, the Cree Indians" (p. 368), Riel, "forgetful of his overthrow at Fort Garry fifteen years before [and therefore presumably as mad as ever!], again raised the standard of revolt" (p. 370). Overwhelmed and captured, he was tried at Regina by an all-Protestant, Anglo-Celtic jury (not mentioned) and "though ably defended" was found guilty of "treason" and hanged (p. 375).

Grant, with no grudge against the North-West Company, views the "degradation of the Indians" dispassionately, even whimsically, as his quoted excerpt from the diary of a Company agent, Alexander Henry, shows:

April 30, 1804. Indians having asked me for liquor, and having promised to decamp and hunt well all summer, I gave them some. Grande Gueule stabbed Capot Rouge, Le Boeuf stabbed his young wife in the arm. Little Shell almost beat his mother's brains out with a club, and there was terrible fighting among them. I sowed garden seeds (p. 253).

Grant also does not play up the Semple and Selkirk incidents, but notes significantly the Swiss among Selkirk's "old soldiers" as well as their settlement in, if not their departure from, St. Boniface (pp. 255-56). Grant blames both sides for the uprising in 1869-70, but the federal government, for the first time, gets the worst of it. The "half-breeds" were "freedom-loving and lawless." But "still more stupid" than the "stupid and niggardly" contractor sent out to build a road from Fort William to Fort Garry were the instructions given to the surveyors. Although running their lines across established boundaries "may seem a small thing to us, to the half-breeds it was manifest witchery and black magic, that men with instruments of brass in their hands should go about making mysterious drawings and writing mysterious words on paper" (pp. 258-59). Dismayed, the *Métis* "found a leader in one of themselves, Louis Riel, who had been partly trained for the priesthood, and was thus a man of some education. Though sometimes rash, vain, and cruel, Riel was also a man of deep religious feeling, who in imagination saw himself at the head of a great French Catholic state on the banks of the Red River" (p. 259). While also condemning Riel for having Scott shot, Grant's tone is more moderate:

So far, Riel had done little more than fight for his rights, but in March 1870, he put himself for ever in the wrong by the execution on a charge of treason of Thomas Scott, an Ontario Orangeman. Scott seems to have had a great contempt for all French Catholics and for Riel in particular, and had undoubtedly

made himself disagreeable, but for the charge of treason there was no evidence whatever, and the so-called execution was a barbarous murder. Ontario was at once in a flame, and its Government offered a reward for the capture of Riel. [Upon Wolseley's arrival] . . . Riel and his men decamped without striking a blow (pp. 260-61).

Both the causes for the return of "this stormy petrel" are carefully detailed and a favorable account of Riel's activities after 1870 is given before he is finally dispatched at Regina. "He was no coward, and met his fate without a tremor." While he "deserved" his fate, ". . . we must not forget that it was the deafness of the Government to the claims of the half-breeds, and not any real disloyalty to Canada on their part, which brought on all the bloodshed and expense" (p. 283).

But while Grant gives the Métis much space, the same cannot be said of the Orientals. The role of the Chinese "navvies" in building the wagon road to Barkerville is mentioned (p. 264), but their monumental, back-breaking labor in building the Canadian Pacific Railway is not. The question of Oriental immigration to British Columbia is touched on in the chapter on "The Provinces, 1867-1914." British Columbia's "chief" problem, we are told, has been an inadequate supply of labor. "For a time it was hoped to solve this by allowing Oriental immigration under restrictions, but the desire to keep the province the home of a white race has been too strong to allow of this solution." As a result, labor quarrels in the past have been incessant: "quarrels between rival firms of canners, and between Canadian masters and Indian and Japanese workmen . . .," quarrels which "are now at an end" (p. 308). The solution entailed a head tax of \$50, then \$500, on Chinese immigrants "whose life was so frugal and thrifty that they could live on wages on which a white man would starve." And when British Columbia "became equally afraid of the Japanese" after the 1907 "anti-Japanese" riots in Vancouver, the Japanese government gave "a written promise . . . that they would try to turn their emigration away from Canada" (p. 324).

Grant is the first to treat extensively the settlement of the west prior to 1914. The whole is done in the context of Canadianization with the emphasis on education and, as was then customary, on the special importance of learning English:

This problem of education was especially pressing because an increasing proportion of the later immigrants were of foreign stock and spoke foreign languages. The pioneers of the west had come from eastern Canada, Great Britain and the United States; they were resolved that the great Anglo-Keltic tradition of combined order and freedom should not be lost, and they knew that one of the great means of Canadianizing the immigrant and of instilling into him these traditions was to teach him the English language. Fortunately most of the immigrants were equally keen to learn it, knowing that without it they would be mere hewers of wood and drawers of water. Yet many of them, and especially of their leaders, loved their mother tongues and desired to retain them, and the problem was complicated by the presence of a number of French who felt that the history of their ancestors in Canada put their language in a very different position from those of the other non-English-speaking peoples. . . .

To get sufficient teachers was a great problem and at first the majority of the teachers in these western schools [established "on the model of Ontario but with certain features taken from the western American states" (p. 334)] came from the east . . . . Often the teacher was the only English-speaking person in the little village of Bulgars, or Ruthenians, or Scandinavians . . . (pp. 335-36).



Thus was the news broken (for about a dozen years) to Alberta's high school students that at least in western Canada there were large numbers of white people who were neither Anglo-Celtic nor French. From Grant, too, the same students would have learned that the War Time Elections Act was passed in 1917 under which "all of alien enemy birth who had become naturalized since March, 1902, and who had not enlisted, were debarred from voting. This last proviso disfranchised many who had already voted in one or more Canadian elections, and was bitterly opposed by the Liberals as contrary to British justice and liberty" (p. 391). Although Grant himself does not say whether this was one of the "blots" in Canada's "story," merely to admit that blots did exist, "to which no true patriot will try to close his eyes" (p. 400), was much more than either Clement or Duncan was prepared to do.

*The Period from 1936 to 1960*

In 1936 Grades VII, VIII, and IX became the intermediate or junior high school in Alberta and between 1937 and 1939 History 1, 2, 3, and 4 were replaced by Social Studies 1, 2, and 3 in the senior high school. The advent of the social studies, a mixture of the social sciences, history, and current events, marked the end of the much-maligned era of the single text, now finally and somewhat ignominiously replaced by 'multiple resource materials.' The advent of the social studies also saw the demise of Canadian high school history taught in a chronological manner. Relegated primarily to the last high school year, Canadian history took second place to (1) developing "a permanent interest in a number of the most important contemporary problems—national, imperial and international, so that the student upon graduation will voluntarily keep in touch with the future developments of these problems" and (2) "creating a due appreciation of the duties and responsibilities of citizenship in a democratic state."<sup>15</sup> National or "Canadian Problems" were divided into "external" and "internal affairs" but Canada's human resources were not included under the latter. Social Studies 3 was, in fact, primarily a course on international developments since 1914, and with the emphasis in the two preceding years also on European history, Canadian history was relegated largely to the first year of junior high school.

The focus on international affairs in Grade XII and on current events in each high school grade was undoubtedly a result of the disbelief with which helpless educational leaders watched the world drift towards another war in the midst of depression, the rise of fascism, and the impotence of the League of Nations. The war itself made the textual transition to social studies more difficult and books written before the war had to serve for 'the duration.' The three most important in the social studies were *Canada Today*<sup>16</sup> by Frank R. Scott of McGill University, one of Canada's foremost constitutional authorities; *Problems in Canadian Unity*<sup>17</sup> edited by Violet Anderson; and *Canada*<sup>18</sup> by André Siegfried. Scott's book, a primary reference ("a list of books that should be available in every classroom library"<sup>19</sup>), was concerned "to show the relation between internal forces and external policy"<sup>20</sup> in Canada. Anderson's book was a secondary reference ("important books which should be added to the classroom library as circumstances permit") and Siegfried's was listed under "Interesting Reading For Students."<sup>21</sup>

All in all, 'other' peoples are given very little attention in the three books, despite some interesting passages. Scott recognizes that the Prairie population is "the most mixed of any in the Dominion, having been augmented for the greater part by immigration during the early years of the present century; only about 49 per cent are British by racial origin" (p. 4). In British Columbia, "The racial composition of the population is mostly British, but there are important Oriental minorities which are denied the franchise and constitute unassimilated groups" (p. 5). "Royal commissions must be appointed, the civil services staffed, and political patronage expended, in accordance with sectional and racial divisions. The twenty per cent of the population which is neither British nor French, however, has little representation in the Dominion or provincial legislatures or administrative services" (p. 10). "The waves of immigration have ceased, and the children of immigrants have not the European memories of their parents" (p. 12). The 6,000 Eskimos and 123,000 "Red Indians surviving" are wards of the Dominion without citizens' rights, except for Indian veterans of the first world war. "Other disfranchised minorities . . . are Doukhobors, Chinese, Japanese, and Hindus" (p. 13n). With the opening of the west, Canada, "like the United States, became a melting-pot into which were poured many kinds of human material" (p. 14), but though "the British element has steadily declined,"

. . . persons of British descent usually occupy the most influential positions in politics, religion and education, outside Quebec, and in finance and industry throughout the country. Their power to control the destinies of Canada is therefore very much greater than their numbers would indicate; also their cultural influence on immigrants of other racial stocks is disproportionately strong (pp. 14-15).

"Chinese immigration was ended by the Dominion Chinese Immigration Act of 1923; between 1925 and 1937 only 8 Chinese were admitted. Japanese immigration is governed by the 'gentleman's agreement' of 1907, as revised in 1928, under which the number of Japanese entering the country does not exceed 150 a year. The total number admitted between 1929 and 1937 was 976" (p. 20n). Scott admits that assimilation in Canada "has not meant cultural or linguistic uniformity, and permits of wide variations of behaviour and belief"—and for the first time is clearly disturbed:

The assimilation of immigrants, in the form of intermarriage and a mixing of stocks, is slow. The "melting-pot" is not producing a uniform racial alloy. The British races—English, Scotch, Irish and Welsh—intermingle freely, with each other and with the German, Dutch and Scandinavian settlers, but not with immigrants less racially akin. Racial diversity is especially noticeable when a foreign group settles in a community, forms a "colony," and preserves its own language and customs, as do the Ukrainians, the Doukhobors, the Orientals, and some other peoples. Moreover, there is no national education system to unify the children's outlook rapidly.

Separate schools and high rates of non-attendance at or early dropout from school, coupled with regional newspapers and few national popular periodicals, tend "to keep public opinion sectional, though the federal control of radio broadcasting is assisting in the development of a more national outlook" (pp. 24-25). By 1971, however, not only are the French Canadians "likely to outnumber" the British, but "many of the non-British, non-French races in the country will by then be assimilated to those of



British descent in attitudes and outlook, thus increasing the homogeneity of the non-French group" (p. 26).

In subsequent chapters we learn that the influence of the Communist party, "particularly amongst certain foreign born groups in Canada, has been considerable" (p. 70); that "A very large proportion of the 2,000,000 Canadians who are neither French nor British do not understand an allegiance divided between Canada and the Commonwealth" (p. 89); that the cultural and sentimental ties that join Canada to the Commonwealth are "less evident in the Prairie Provinces where the non-British immigrants are mostly settled" (p. 105); that when Canadians talk about "'foreigners'" in the population, "they are not thinking of American settlers" (p. 110); and that the 50 per cent of the population of non-British origin "can scarcely feel a sentimental obligation to take part in every British war" (p. 136), for "most . . . have no sentimental or racial attachment to Great Britain" (pp. 145-46). There is no need for concern, however, for "the total French-Canadian and foreign group which is most isolationist holds only six out of sixteen" Cabinet seats and the foreign group "has only one representative, the Honourable W. D. Euler" (p. 147 and n.).

In *Problems in Canadian Unity*, even when the discussion encompasses subjects other than labor, unionization, and agriculture, there is no recognition on the part of historians like Arthur R. M. Lower and Frank H. Underhill, or a lawyer like Roger Ouimet of Montreal, or a *Winnipeg Free Press* editorial writer like J. B. McGeachy that there are other peoples in Canada besides the French and "English." Such is not the case with Siegfried, who devotes one of four parts to "Demography." The "cosmopolitan" (p. 56) or "exotic" peoples ("Slavs and Mediterraneans," p. 102) are recognized, on the one hand, as posing difficult problems of assimilation and, on the other, as making Canada less British or French and more North American. Even so, with English "eventually imposed as the prevailing tongue" (p. 108), the "Anglo-Saxon" benefits to the disadvantage of the French. Siegfried understands well the crucial role which language plays in assimilation:

. . . the English language is a factor of Canadian political unity, not only with regard to the French who are obliged to learn it, but also with regard to the cosmopolitan immigrants who cannot be assimilated until they have adopted it. When English Canadians protest against the tolerance shown towards the languages of the minorities, they show that they realize what is required to consolidate the Canadian personality under the British aegis. Their indignation at the idea that another language besides English should be spoken in Canada arises assuredly from the well-known Anglo-Saxon laziness when it comes to learning foreign languages. Actually 96 per cent of the Canadians of British origin speak only English! (pp. 93-94).

With such sentiments, perhaps it is not surprising that Siegfried's book did not reappear on any high school reading list in subsequent years while Anderson and Scott were continually recommended (if available) until 1953-54,<sup>22</sup> Anderson at the Grade XII level and Scott as a primary reference also in Grade XI in 1944-45<sup>23</sup> and in Grade X in 1945-46.<sup>24</sup>

With the war's end, three major additions were made in the list of social studies readings. In *Social Studies 3 Contemporary Problems*<sup>25</sup> by L. A. Bagnall and K. Norton, both high school teachers in Calgary, became the



primary reference. Far more important for our purposes, *Building the Canadian Nation*,<sup>26</sup> a history by Professor George Brown of the University of Toronto, was suggested as a general reference in Social Studies 2 in 1944-45<sup>27</sup> and in Social Studies 1 in 1945-46,<sup>28</sup> and as a primary reference in Social Studies 1, 2, and 3 in 1946-47.<sup>29</sup> Brown holds Alberta's record as the most recommended history text, being mentioned as late as September 1967.<sup>30</sup> The third addition was *Social Living*, an American text by P. H. Landis and J. T. Landis, which passed through three editions,<sup>31</sup> surpassing even Brown for longevity. *Contemporary Problems*, despite its title, is of little significance; the space devoted to Canada is slight. Under "Canadian Political Problems," students learned that among the "Factors Promoting Canadian Unity" are "A common background for many of our people" and "The English language which is understood by most Canadians and is the common medium of expression" (p. 174). Among the "Factors Hindering Unity" is the recognition that "English and French factions do not unite readily" and the complaint that "Many hyphenated Canadians think more of their old homes than of Canada" (p. 175). Bagnall and Norton, who held the inside track in Grade XII social studies until the mid-fifties, definitely lacked the intellectual sophistication of the writers they replaced. The same fortunately is not true of Brown or of a text by Professor Lower and J. W. Chafe (a high school teacher in Winnipeg), *Canada—A Nation; And How It Came To Be*,<sup>32</sup> introduced in 1952-53 as secondary and primary references in Grades XI and XII respectively.<sup>33</sup> As the two main high school histories of Canada in the decade after the second world war, they will be discussed together.

Both Brown and Lower and Chafe note that the Indians were hostile towards Cartier during his third visit to Canada but neither indicates why. The captivity and subsequent death of the kind Donnacona and his tribesmen are apparently no longer important. Brown devotes a whole chapter to the native peoples (both texts ignore the Eskimos) and both texts have chapters on missionary work among the Indians. Brown, unlike Lower and Chafe, does much to rehabilitate the Indian image. The Indians showed "remarkably ability" in adapting themselves to the country, displaying "great cleverness in making use of their resources" (p. 14). So adept were they in fact that the fur trader and pioneer learned "innumerable lessons [from them] which made life in the New World easier" (p. 18). The white man's coming, in turn, "seriously upset" the Indian way of life, bringing influences that were "injurious and destructive" (p. 19). "The Iroquois Scourge" remains in chapter VI, as do the "superstitions," the "belief in magic," and the "feasts and ceremonies which were often no better than wild orgies" (p. 39 in chapter V, "For the Glory of God"). But even the Iroquois occasionally draw praise. They were "democratic in some ways, being led for example, by chiefs who owed their positions solely to their skill and courage in battle, their eloquence and dignity" (p. 45). Lower and Chafe, in a much briefer treatment, associate the Indians with "'the powers of darkness'" in a "vast, pagan land" (p. 45). Father Brébeuf is a man of "almost giant stature and military bearing" who "must have presented a striking figure as he stood before his dark-skinned audiences" (p. 47), "reaching [with others] the souls of the savages" amidst "the indescribable filth of the villages and the loathsome food" (p. 48). The Iro-



quois at the Long Sault are simply "hundreds of bloodthirsty savages" facing Adam Dollard (p. 53). Can the brevity of treatment alone account for such occasional lapses into the vocabulary of the early twentieth century?

With Brown, the earlier stigma attached to the *coureurs-de-bois* and the *voyageurs* largely disappears. The governor at Quebec only felt that "the wanderings of the *coureurs-de-bois* among the Indians should be discouraged" (p. 63); the *voyageur* ("his clothing . . . a combination of French and Indian dress—the *mocassin*, the gaudy woven sash, the coon-skin or bright woollen cap") is a man of "good humour which was never far below the surface": "With their rollicking songs, their endless fund of stories, their gaily painted canoes, and their skill in forest they were a type of Frenchman completely weaned away from the life of Europe" (pp. 89-90). Lower and Chafe pay little attention to the *coureurs-de-bois* beyond a footnote definition filled with innuendo: "... a general term for all . . . who, usually in defiance of government and church, 'took to the bush' and 'went Indian'" (p. 62n). The *voyageurs* at Fort William accompany their stories with "much drinking" and "an almost continuous round of uproarious celebration in which our canoemen, scorning the chance for a well-earned rest, join with gusto" (p. 158).

The anti-British Pontiac, "able chief of the Ottawas" (Lower and Chafe, p. 126) and "perhaps the greatest Indian warrior in the history of the continent" (Brown, p. 116), comes off much better than the "famous Indian chief" Tecumseh, "that staunch British ally" (*ibid.*, p. 188), whose fame, power, and death Lower and Chafe merely note (pp. 180, 187). Also merely noted are the founding of Lunenburg by "a few hundred Germans" in 1753 (Lower and Chafe, p. 139; Brown, p. 113), and the "interesting mixture of people" in Nova Scotia by 1770, "some from France, Germany, and Switzerland" (Brown, p. 114). The Loyalists, as usual, get much attention, but, apart from the Anglo-Celtics, the vaunted "variety of people among them" is confined by Brown to the Dutch and Chief Joseph Brant's Mohawks (pp. 142, 143) and by Lower and Chafe to the Germans, Dutch, and Mohawks (pp. 144-45). Slavery and the blacks are no longer mentioned; the orientals of British Columbia, as we shall see, are barely noted. However, Lower and Chafe provide the model for future pioneer life: "Marriages between young people from different settlements were frequent and . . . as the process continued, the different racial settlements—Northern Irish, Highland and Lowland Scotch—began to 'melt'". . . (p. 208).

Brown pictures the Nor-Westers, the successors of the *coureurs-de-bois* and *voyageurs*, as jolly, carefree adventurers, engaged in "revelries" during "boisterous and hilarious" respites from their work (p. 149). Their offspring by Indian wives are praised as "sturdy and capable people, . . . excellent hunters and canoemen . . . [who] played a prominent part in the history of the North West" (p. 246). Lower and Chafe are less impressed. The same offspring had perpetrated the "'Massacre of Seven Oaks'" (p. 176) and their "primitive way of life" was held in "contempt" by "The English-Canadian immigrants at Red River" (p. 345). But it is Riel, as usual, who provokes the strongest comment:

Riel had been educated for the priesthood in Montreal but because of his lack of balance had not been accepted by the Church. . . . in March, 1870, he committed a cruel and irresponsible act. When Thomas Scott, a young Orangeman from



Ontario, proved defiant, he was given an unfair trial, then taken outside and shot. This incident, which wise policy could have avoided, was to have a tragic effect on our country (Lower and Chafe, p. 347).

When Wolseley's troops arrived, Riel "walked out" of the fort and "went into hiding" (*ibid.*, p. 348). Brown is fairer, but Scott still comes off blameless. Riel, "a young half-breed with some education and ability" was opposed by "the Canadians at Red River." "One, Thomas Scott, was thought by Riel to be unruly, and after a hasty trial was executed . . . Thousands in Ontario regarded his execution as little short of murder, while in Quebec feeling ran equally high on the other side" (p. 332). Wolseley's expedition is mentioned only after the establishment of Manitoba as a province and there is no reference to Riel's departure. Brown, leaning heavily on Laurier, describes Riel in 1885 as a man "unbalanced in judgment and with weaknesses, such as vanity and indecision" (pp. 337, 364). Lower and Chafe dismiss Riel uncereemoniously in 1885, blaming Sir John A. Macdonald for the whole fiasco (pp. 363-64).

As did Grant, Brown and Lower and Chafe have sections on "Newcomers From Many Lands" (Brown, pp. 365-69) and "The Opening of the West" (Lower and Chafe, pp. 395-400). The scenario is similar: Laurier on the threshold of the twentieth century, the aggressive Sifton, the earlier arrival of the Mennonites and Icelanders in the 1870s, the long period of subsequent economic stagnation, the coming of the strangers from central and southeastern Europe complete with pictures of men and women in sheepskin coats and white-washed houses with thatched roofs, the bloc settlements, and "On the west coast Chinese, Japanese and even Hindus [who] began to enter in numbers which alarmed the white people" (*ibid.*, p. 396). Two things stand out: (1) the inevitable 'sermon' at the end pointing a direction for the future, and (2) the absence of any attention to the fate of the settlers *and their children* in subsequent years. Brown's 'sermon' exemplifies the mutual exchange of 'gifts'—an approach in line with the view of Canada as a cultural mosaic, popular at the time.<sup>34</sup>

One cannot wonder that these newcomers did not wish to forget entirely the homes they had left, and yet the vast majority sincerely wanted to be loyal citizens in the land of their adoption. Canada, they believed, could give them not only land but a freedom their fathers had never known. And in return, they brought qualities of thrift and patience, a love of beauty, of music, and of handicrafts, which, if woven into Canada's life, could colour and enrich it (pp. 368-69).

Lower and Chafe's 'sermon' stresses the theme of 'pure Canadianism.'

In bringing about a real community in the Canadian West, out of the chaos of conflicting elements dumped into it, no more potent instrument existed than the country school. By 1914 its work and that of similar agencies had not gone far, and Western Canada was still not much more than a collection of individuals and groups. But a generation later, signs had multiplied that in that part of the country a new type was emerging, neither English, French nor European, but simply Canadian (pp. 399-400).

That the account of the immigrants and their children should end with such homilies is rather incredible. It is as if, upon arrival, the newcomers and offspring hit a huge swamp—an enormous field of quicksand—which simply swallowed them up! Brown does recognize that "Eskimos; In-



dians on a reservation unless they served in either of the two World Wars; Japanese, Chinese, Hindus, and Doukhobors in British Columbia; Japanese in all provinces" cannot vote (p. 530), but the rest is silence. How did the various peoples and their children fare in Canada? What were their main occupations, and how much has that changed? What specific problems did they pose for Canada? What problems, in turn, did Canada pose for them? What problems do each still pose for one another? What were their cultural and linguistic aspirations and how well have they been realized? In what ways have they helped to develop a distinctive Canadian identity? Were their efforts encouraged by the Anglo-Celtics and French? How? Could each generation have done more if their languages had been given the same encouragement as their handicrafts, folk dances, and cooking? Why is no attention paid to the cultures (including the languages) of Canada's 'other' peoples when the crisis of Canadian culture and identity is discussed? Will the glib assumption that progress is being made and time will take care of the rest suffice? "Since large-scale immigration ceased in 1930," according to Lower and Chafe, "the various peoples of our country have been settling down together and the process by which the newcomer becomes a citizen and a Canadian has been speeded up" (p. 433). Speeded up in what direction? In short, what is the content of the Canadianism being 'absorbed'? Brown's brief reference under "Suggestions for Reading" to *Canadian Mosaic* by John Murray Gibbon for "interesting information about the culture and crafts of the national groups" (p. 378) is no substitute for a chapter on how Canada's 'other' peoples have affected the long-standing debate on socioeconomic opportunity, culture, language, and national identity in Canada. Some of Canada's 'other' peoples have always been more visible than others; who have they been and why have they stood out?

Needless to say, the impact on central and southeast Europeans of the Military Service Act and Wartime Elections Act in 1917 is ignored, as is the dreadful fate of the Japanese in British Columbia after Pearl Harbor. Reference is made in Brown to the great development in the inter-war period of "organizations of all kinds—religious, charitable, commercial and educational" (p. 425), but apparently the page would have been marred had the word 'ethnic' been included, even though most of today's ethnic organizations date back to that time. The coming of the displaced persons is discussed by Brown (and noted parenthetically by Lower and Chafe, p. 487), but the paragraph ends on this pious note:

Though Canada thus made a contribution to these newcomers, she gains much in return. Carefully selected and bringing with them the hope of beginning life anew, they will add to Canada's economic and cultural development as earlier immigrants have done in the past (p. 494).

Equally self-assured (though no less vague) is the following: "With the two main cultures are also mingling contributions brought by groups from many other lands. Greater understanding is thus bringing a clearer realization of the rich resources of Canada's population" (p. 500). Just as confident (and as misleading, even confusing) are some of the closing passages in Lower and Chafe. First, "signs are not wanting that we are marching" in the direction of "perfect harmony" and "French and English, 'new' Canadians and 'old' Canadians, are finding it easier to meet. We are all Canadians



together" (p. 491). The epilogue also recognizes, however, that Canada, after 1896, "made herself over into a state of far more varied humanity than she had ever been before" (p. 496). But on the next page, both the earlier 'pure' Canadians and the varied humanity become "two peoples" who occasionally quarrel but "are still together after two hundred years, and together go on to the conquest of the stern nature that surrounds them" (p. 497). The "varied humanity" has presumably slipped off into the sunset—or far more accurately into the Anglo-Celtic and French-Canadian melting pots (humble objects known to every school child as the exclusive property of the Americans to the south!)

Nor do the recommended civics book, the social studies classroom bulletins, or the American sociology textbooks help the situation much. For over a decade after 1952-53, the civics book listed as a secondary reference in Social Studies 2<sup>35</sup> and after 1953 also as a general reference in Social Studies 10<sup>36</sup> was *Canadian Citizenship*<sup>37</sup> by C. C. Goldring, D. Paed., Director of Education in Toronto. Part II "Life in a Community" ignores the ethnic organizations as usual, but chapter VIII "Culture in a Community: Church, Library, Art, Music, Drama" has a typical section on the "Contributions of New Canadians to our Cultural Life," complete with bar graph on "Racial Groups," based on the 1941 census. The "national culture" of people from many countries "becomes fused with what is here." The central Europeans and Russians excel in music; the Scandinavians in art and handwork. "The French have added to Canadian culture in language, music, and by some of their thought and traditions." The result of "our Anglo-Saxon origin" and the above enrichment of "our way of life" means that the level of Canada's cultural life "should be very high."

One condition is necessary however. These newcomers . . . must be made to feel welcome and be received by the native-born Canadians. The newcomers should be assimilated into Canadian life and made to feel that they are in a very real sense, Canadians. They should not find it necessary to live apart in little racial groups across the country. Are the native-born Canadians in your community showing leadership in welcoming and trying to assimilate those who come from non-Anglo-Saxon countries . . . ? (pp. 87-88)

The book also exemplifies well still another thoughtless characteristic of the time, namely, the easy equation of the British Isles with Canada's "Mother Country" (p. 252), while all other groups, as the above quotation shows, are not even to live in "little racial groups," let alone be mindful of their mother countries overseas.

The social studies classroom bulletins issued by the Department of Education to aid high school teachers began in December 1943<sup>38</sup> and tapered off as other published materials became more prevalent in the early 1950s. Here, too, 'other' peoples are ignored, except for the section on "Immigration" in a bulletin which appeared in October 1944<sup>39</sup> and was re-issued in February 1948<sup>40</sup> for use in Unit XI on "Immigration" in Social Studies 2.<sup>41</sup> While immigration is discussed largely in economic terms, the great historic periods in Canadian immigration are singled out, the restrictions placed on Oriental immigration after 1885 are outlined fairly extensively, and the "order of preference" (or 'racial pecking order') from the British Isles, down through northern, central, and southeastern Europe to the Orient is candidly admitted and attributed "largely" to two factors:



"standard of living and the readiness with which the newcomers are assimilated. These factors will probably continue to dominate our actions, virtually excluding Orientals" (p. 33). Interestingly enough, the reference to Orientals is excluded in 1948, as is the entire next to last paragraph which suggested hesitatingly that there might be other than economic aspects to the immigration "problem": "Perhaps we would do well to consider that those who come to our shores may bring with them great intellectual and artistic gifts or fine traits of character which will enrich the nation. They may give as much to Canada as they gain from her" (p. 34). Whether this passage was omitted because it gave offence as a meaningless platitude or a significant, question-begging truth is impossible to say. Immigration is briefly discussed again (without comment) in March 1952 after the 1951 immigrants reached the highest total (174,715) since 1913, and special attention is paid to the countries of origin, from which list the Orientals are conspicuously absent.<sup>42</sup>

If Canadian writers of classroom materials ever had any qualms about their superficial treatment of Canada's 'other' peoples, they no doubt could take heart from the equally vague offerings of American texts like Landis and Landis (1938).

Each of these little foreign worlds in the great city presents difficult problems in city government, in law enforcement, and in Americanization. On the other hand, each nationality offers a certain enrichment of our life and our culture. American culture would be inconceivably impoverished if the contributions were withdrawn of those who have been cast into our "melting pot" during the past century under our liberal immigration policy. The Irish, Germans, Scandinavians, French, Italians, Russians, Spaniards, Jews, and other peoples who found political freedom, new homes, different tasks, and changed lives in the United States brought us many things—things, from the sociologist's point of view, bad as well as good, but neither all bad nor all good (p. 475).

Nor is the chapter on "Race and Nationality Problems" any more satisfactory. The main emphasis, as might be expected, is on the problem of color and on overcoming prejudice. The staggering magnitude of the neglect perpetrated by Canadian historians, social scientists, and pedagogues who wrote the authorized or recommended textual materials can be gauged from the fact that a whole generation of Albertans learned more about the problems of minorities in the United States than in their own country through chapters like the above or "Minority-Group Problems in a Democratic Society" (Landis, 1958) or "Minority Groups in America" (Landis, 1964)—all outside the context of the 'English-French' confrontation and the difficult politics of relating language(s) to the development of Canadian culture and a distinctive national identity.

No doubt, the low point in this respect was reached with the adoption in 1955<sup>43</sup> of *Canada in the Modern World*, a Grade XII social studies text written by three Edmonton high school teachers<sup>44</sup> and based on Professor Edgar McInnis's *North America and the Modern World*.<sup>45</sup> It was not replaced as the primary reference until 1967.<sup>46</sup> Canadian history was confined to the post-1763 period in Unit IV "Nationalism and the Modern World" (nine chapters out of twenty-eight) and even half of that was given over to the familiar theme of Canada's advance from 'colony to nation within the British Empire and Commonwealth.' With even the Loyalists



given only three short paragraphs, Louis Riel's first appearance, two sentences and his second, a single paragraph, it is not surprising that 'other' peoples are either ignored or dismissed with 'half-liners': "By 1905 the West was being opened by thousands of settlers . . ." (p. 320). Not surprisingly also, Albertans were not prepared for the wider implications of the explosive language-culture debate which descended upon them in the 1960s, for neither *The Book of Canadian Achievement*<sup>47</sup> nor *Culture in Canada; A Study of the Findings of the Royal Commission on National Development in the Arts, Letters and Sciences (1949-1951)*,<sup>48</sup> also introduced in 1955 as secondary references in Social Studies 20,<sup>49</sup> had much to say about Canada's 'other' peoples. Out of fifty sections, the first book involved them in five: "An Indian Princess Sings" (Pauline Johnson, pp. 122-28), "Pioneer Painter of Indian Life" (Paul Kane, pp. 163-67), "He Made a New Art of Portrait Photography" (Yousuf Karsh, the Armenian genius, pp. 195-200), "Canada's Leading School of Music" (Drs. A. S. Vogt and Et-tore Massoleni, member and president respectively of Toronto's Royal Conservatory of Music, pp. 214-16), and "A Music Festival Discovery" (fourteen-year-old Donna Grescoe, a "little violinist of Ukrainian parentage," now long forgotten, pp. 228-30).

*Culture in Canada* is interesting on several counts. It recognized that the subject of culture in Canada is commonly associated with "'long hairs'" and "'funny little minorities'" (p. 4); that the Massey Commission was concerned with a country marked by "great regional and cultural diversity" (p. 12); and that the proposed Canada Council would contain representatives from "the various cultures and regions of Canada" (p. 16). Even so, the cultural variety and diversity did not include language, for Canada's peoples consisted of "two language groups" (p. 17). The same paragraph which favored "more regional programming" on the CBC, encouraged radio broadcasting in English and French only (p. 18). Presumably the regional advisory councils appointed to "represent the views of the listeners" (p. 21) would have to cope with the regional linguistic and cultural aspirations of the "'funny little minorities.'" That the discussion of Canadian cultures outside a linguistic framework troubled the Commission is evident from the eagerness with which it seized upon painting "as an artistic and honest expression of the Canadian spirit" and "an important force in Canada's national unity, enhanced by the fact that there are no linguistic barriers" (p. 50). The idea of learning several of the many languages spoken in Canada to overcome some of the barriers did not apparently occur to the members of the august Commission—all solid members of the 'English-French' Establishment, including Professor Hilda Neatby, then acting head of the History Department at the University of Saskatchewan.

### *The Period from 1960 to the Present*

The impact of Quebec's "Quiet Revolution" did not affect social studies education in Alberta until 1970 when the high school program was completely revamped around value questions and "Canadian Studies" became the subject matter of Social Studies 10.<sup>50</sup> Throughout the sixties, Canada's 'other' peoples, too, were portrayed through the teaching materials of the 1950s. In 1964-65 it was suggested that in Grade X, under Elective C



"Aesthetic and Cultural Values," the "maintenance of music appreciation of various ethnic groups" be included in connection with "Present-Day Features and Facilities,"<sup>51</sup> but no reading materials were recommended. In 1970 an entirely new list of readings was introduced, which after a year's trial was stabilized under "core" and "additional" references, with the observation that

No single school will be able to purchase all the materials . . . Teachers must exercise discretion in selecting those materials that seem best able to fulfill the specific aims and objectives of the school's social studies program . . . It is recommended that no more than five copies per class of any one title be purchased.<sup>52</sup>

For "Values Issue(s)" No. V "Should Canada move toward greater national unity?" and No. VI "Should Canada have two official languages?" eight core and thirteen additional references were listed. It is significant that *The Official Languages*,<sup>53</sup> Book I of the Royal Commission on Bilingualism and Biculturalism is a core reference, while *The Canadian Family Tree*<sup>54</sup> and Book IV of the same Commission, *The Cultural Contribution of the Other Ethnic Groups*<sup>55</sup> are both among the secondary references. Also among the core references are two histories, *The Canadian Experience*<sup>56</sup> by John S. Moir and D. M. L. Farr, professors of history at the University of Toronto and Carleton University respectively, and *Canada: An Outline History*<sup>57</sup> by J. A. Lower, a school teacher in Saskatchewan, unrelated to Professor Lower. Both histories are very matter-of-fact—almost scrupulously so. Because of Lower's slight size (248 pp.), events are treated sketchily and the book merits little attention. In both, however, characterizations are minimal and descriptions are usually carefully balanced: "... the settled life of the Aztecs . . . bears no resemblance to the primitive existence forced upon the nomadic hunting Indians of the harsh Canadian Shield" (Moir and Farr, p. 11); "There is no question that the hot-headed Scott had provoked and insulted Riel, but the Métis leader apparently seized upon a minor provocation to demonstrate his determination to Ottawa" (Lower, p. 124). The native peoples are handled in almost antiseptic-like fashion. Lower ignores the Eskimos and concentrates on the Iroquois. Moir and Farr deal with both the Eskimos and Indians and the word "savage" slips in only once: Some European explorers went forth "carrying the Cross to bring competing forms of Christianity . . . to the savages of foreign lands" (p. 20). More usually, the objective was to "Christianize the natives" (pp. 30, 33, 36). Neither book mentions Donnacona nor the subsequent hostility of the Indians towards Cartier. The natives are "debauched" by the coureurs-de-bois and the latter "brutalized" by contact with the Indians (Moir and Farr, p. 61). The Loyalists were "a cross-section of American society" (*ibid.*, p. 102), but only Chief Brant's Mohawks are specifically mentioned (p. 114). The Dutch and the German groups are part of the steady stream of immigrants after 1800 (Lower, p. 75), but Moir and Farr prefer to stress the religious groupings: "... large groups of German-speaking Mennonites, Dunkards, Quakers and other 'plain folk,' and Lutherans arrived from Pennsylvania and New York . . ." (p. 115). Riel's movements before and after 1870 and the events of 1884-85 are carefully detailed, and with the benefit of G. F. G. Stanley's *Louis Riel*,<sup>58</sup> Moir and Farr finally dispatch Riel as an insane heretic ("His

heresy was . . . [in French-Canadian] eyes proof of his insanity.”), but Scott is again blameless and Macdonald ultimately at fault (pp. 249-54).

But if the Métis are finally given the attention they deserve, the same cannot be said of Canada's other 'other' peoples. The swamp is still there, wider than ever. Out of 576 pages, Moir and Farr devote only two to the period of settlement before 1914. The fact that “Ukrainians [and] Ruthenians (from the Balkans)” (p. 323) are still lumped together a half-century after Canadian Ukrainians began to rescue their identity is probably best overlooked. But how does one explain the failure to notice the fortunes of the Icelanders in Gimli, The Mennonites in the Red River valley, the Orientals on the west coast, the Blacks in Nova Scotia and Ontario, the Doukhobors in Saskatchewan and British Columbia, and the Hutterites in the Prairie provinces? The book's title is thus a misnomer, for what can “the Canadian experience” be where practically a quarter of Canada's population is ignored. So complete is the neglect that one might suppose western Canada had no demographic base—none, that is, other than the pallid euphemism ‘English Canadians.’ It is truly incredible that anyone with serious pretensions to writing a high school history of Canada in the late 1960s (after two generations of proud reference to Canada's mosaic, its cultural pluralism, etc.) could think it sufficient to include only three references to Canada's ‘other’ peoples in the last 249 pages. The first (a single line) is to the disastrous effect of the Wartime Elections Act (1917) on “Canadians born in enemy countries or naturalized since 1902” (p. 368); the second (two words) to the coming of the “displaced persons” after the second world war (p. 481); and the third (two lines) to Prime Minister Diefenbaker's being “intensely proud of his German origin and conscious that he represented that large number of Canadians who were of neither British nor French origin” (p. 506). In the last chapter on “Canada's Second Century: Problems and Prospects” the account is confined to the ‘English’ and French, to the “two founding races” (p. 558), and to the “two cultures” (p. 559), even though “the continuing debate on Canada—its nature and destiny” (p. 558) is explicitly recognized and Prime Minister Pearson's celebration of Canada's diversity (including language) in 1967 is quoted approvingly:

The future of Canada, indeed its very survival, depends on our success in building a society where diverse races and languages, diverse talents and capacities, diverse energies and interests are not only permitted, but are encouraged to grow and develop side by side (p. 541).

It is almost as if the two historians found all the diversity embarrassing and decided to close the “debate.” This they do very effectively when “Canada's Second Century” turns out to involve no more than two peoples, the ‘English’ and the French.

It is difficult to account for this confusion and neglect in high school history texts, but it may stem from misreading passages in such core references as the civics text, *Canadians And Their Government*<sup>59</sup> by A. S. Merritt, and the well-known historian, George W. Brown. From the chapter on “The Law, The Courts, and Civil Rights,” it is clear that “an individual's race, creed (religion), colour, nationality, ancestry, or place of origin must not be determining factors in his hiring or firing, his treatment in employment, or his admission to a trade union” and that “the accom-



modation, services, or facilities of such public places as hotels, restaurants, stores, and barber shops must not be denied to an individual on account of his race, creed, colour, etc." (p. 71). Perhaps the wording is unfortunate for it suggests that such factors are unimportant, when precisely the opposite is intended. That is, each is so important, it ought to be accepted as part of each individual's make-up and not used against him in a discriminatory way. Being integral parts of each human being, such factors merit respect, not neglect, and access to opportunities and services on a non-discriminatory basis is a mark of the high regard in which such private and personal characteristics are regarded by a particular society.

Another core reference is *Challenge of Confrontation: Canada 70*, a series of six paperbacks by the *Toronto Telegram's* editorial team on "the Canadian predicament,"<sup>60</sup> in which, for the first time, Canada's 'other' peoples are dealt with extensively, particularly in two volumes, *The Prairie Provinces; Alienation and Anger*<sup>61</sup> and *Ontario; The Linchpin*.<sup>62</sup> The first gets to the heart of the matter early: "How do you explain ["to uninterested Easterners" (p. 5)] that French language rights just don't look all that important in a region where there are more Ukrainian- and more German-speaking people than French-speaking?" (p. 6). Another paragraph treats well the difficult question of how much cultural diversity can really survive within a melting-pot society:

The Western Canadian is impatient because he is a person different from the "Easterner." He is part of a more colourful mosaic which is, perhaps, closer to the American melting pot. He believes there is need to drop extreme cultural distinctions when they interfere with the greater values of unity; but he refuses to relinquish his right to homeland language and customs. He believes this tenuous balance can be maintained so that Canada can become a living example to the world. He believes Canada has a vitally important role to perform in world councils of tomorrow. He believes that by drawing on the best of a multitude of cultures, the Canadian can enjoy the richest life ever offered (p. 6).

But the basic orientation of the series is nonetheless essentially assimilationist. Despite an account in *The Prairie Provinces* . . . of how "the erratic Riel won his way into history" (p. 24) "to perpetuate the duality of language" (among other things) only to witness the subsequent dearth of French immigration (p. 26); and despite frequent references to immigrants and their descendants from points other than France or the British Isles—the coming of the Mennonites and Icelanders (pp. 26-27), the Poles and Ukrainians with "extreme nationalistic notions in the early years to the point of wanting to establish a little Ukraine in Canada" (p. 33), their varying attitudes towards assimilation "into what was expected to become a distinctly English-speaking Canadian character" (pp. 33, 41-42, 59, 65), their current feelings about the Official Languages Act (pp. 7-8, 19, 20, 52-53, 57), the learning of 'other' languages (pp. 30-31, 33), and special status for the French (pp. 50-52, 72); and even despite the first use of the term "multi-cultural" (pp. 44, 45, 72) and a whole chapter on "Canadians First, But . . ." (pp. 43-54), it is clear from the passages below that high school students were not to take the vaunted diversity seriously:

Although many still speak the language of their ancestral homelands and retain some of their traditions, a new breed of Canadians has been emerging on the Prairies. They are an amalgam of many cultures, united behind the common purpose of creating a better Canada (p. 19).

It was becoming increasingly difficult [by 1961] to separate an "ethnic" of one background from an "ethnic" of another country. Too many wanted simply to be Canadians. It was a point of regret to their elders, but apparently inevitable (p. 42).

If your great-grandfather came from Scotland and married an Indian girl; and if their son married a French girl; and if their son married a Ukrainian girl; do you tell the census-taker your ancestors are Scottish, or—heaven forbid—do you whisper "Canadian?" (p. 43)

... the main thing wrong with Confederation is special consideration given ethnic groups ... (p. 48).

Then there is the view of a successful, urbane, Ukrainian-descent lawyer in Regina, Edward Boyda:

I don't regard myself as a Ukrainian. My grandfather came here in the 1890s. I regard myself as a Canadian and I don't have any real contact with Ukrainian organizations as such. But I would think it fair to say there are those who think the Ukrainian language should be on a par with the French, but that view is steadily diminishing (p. 51).

If there were regrets in mixing the colours of the mosaic, there is also pride in the resulting hue. They are calling it Canadian (p. 59).

There was, in short, "an exciting synthesis of many races" (p. 59), but, as usual, the precise impact of this on Canada's celebrated multiculturalism is ignored. Multiculturalism presumably can stand for anything!

The volume on Ontario is similar. A short chapter "Bilingualism But Not Biculturalism" (pp. 88-92) marks the shoals on which biculturalism eventually ran aground, but one also learns from "what the English usually call the *Ethnics*" that "The most persistent hope of the members of the cultural groups, who constitute more than one-quarter of the population now and should reach one-third by 1981, is that we all be Canadian" (p. 88). Blissful British Columbia,<sup>63</sup> where 47,000 "basic Canadians" (i.e., the Indians) find the debates about who came first "ironic" and where the Chinese "have assimilated happily" (p. 55), illustrates well the full gamut of contradictory views about the relationship of Canada's 'other' peoples to the language-culture debate. The Chinese, according to their leaders, are "Canadians first; they have contributed and they have taken. They would never try to assert their culture. Its preservation is family business, not the nation's" (p. 55). Meek and mild, cowed after decades of tortured history (but "wonderously devoid of bitterness"), the Chinese try hard to offend no one:

They [the Chinese leaders] say French Canadians should have preference, that their language and culture must be safeguarded. "... the French and English are the *élites*."

But they say also that Canada should not concern itself so much with becoming bi-cultural. It is, after all, a multi-cultural country (p. 59).

A young French Canadian from Maillardville makes it clear that "We are not trying to get the English [the Chinese presumably included!] to become bilingual"; another is sure that "There is something in the B.N.A. Act that does put the French in a higher echelon ... We don't think we're *ethnics*" (p. 57). The Indians, some of whom are becoming trilingual by learning French, disagree: "Hell no ... They were thoroughly defeated by the English and the Indians" (p. 58). The French Canadians in Quebec<sup>64</sup> (or at least Prime Minister Trudeau) are not afraid of the word 'ethnic,' referring to the "French Canadians" and "English-Canadians" as "our two ethnic



groups" (p. 12). The presence in Quebec of 'other' peoples is recognized and emphasis is placed on their opposition to separatism and their preference for the English language: "The next generation will speak English and French both, but their loyalties, learned from their parents, will be to Canada, not to Quebec" (p. 53).

In the end, the impression is strong that the Alberta high school student who had read all six volumes would be long on specifics, but short on understanding the fundamental issues. In the summary volume,<sup>65</sup> for example, he would learn from Quebec's late Premier Bertrand that "If there is a crisis in Canada, it is not because our country is made up of individuals who speak different languages; it is because Canada is the home of two communities, two peoples, two nations between whom relations need to be harmonized" (p. 113). But elsewhere in the same volume, he would also learn that "a vital difference between Canada and the United States is that here the multi-cultural mosaic replaces the melting pot" (p. 54) and that Canada "has a golden opportunity to become the world's shining example of how diverse regions and heritages can remain parts of a united whole without sacrificing their distinctive qualities" (p. 123). English-speaking Canadians should also encourage their children to learn "another language" (p. 104) or "a second language" (p. 141), when the implication is clear that it is French and not just any language that is to be learned. The ease with which "any furthering of other-language learning" (p. 92) and French are assumed to be interchangeable can only be attributed to the thoughtless manner in which words are thrown about on this important subject.

Such thoughtlessness is seldom evident in the last core reference to be considered, *The Official Languages*,<sup>66</sup> the first of several reports by the Royal Commission on Bilingualism and Biculturalism. While the reference to "Canada's languages and cultures" is not clear (p. xvi), the overall choice of words is careful and there is, as one might expect from the title, much reference to the "English- and French-speaking people" (p. xvi), to "the two societies," "the two majorities" (emphasis in original, p. xvii), and to "an equal partnership between the two founding races" (p. xxi). But 'other' peoples are not completely excluded. The Commission objects "in the strongest terms" to the practice of restricting the term "ethnic" to groups which are "neither British nor French": "Ethnicity then appears as a strange, possibly distasteful phenomenon: "'ethnic'" seems to be given a sense something like "'foreigner'" (p. xxiv). Although rehabilitated by the Commission, ethnicity is "a phenomenon which the Commission, as it interprets its mandate, regards as being on the whole unrelated to its objectives" (p. xxv).

But Canada's 'other' peoples need not despair.

Canadians who are of neither British nor French origin are covered by our inquiry in two ways: a) to the extent that they are integrated into English- or French-speaking society, all that is said of Anglophones or Francophones applies to them; and b) to the extent that they remain attached to their original language and culture, they belong to other ethnic groups, whose existence is definitely beneficial to the country. But their freedom to participate fully in Canadian life will be real only on two conditions: that both societies, the French-speaking as well as the English-speaking, accept newcomers much more readily than they have done in the past; and that the two societies willingly allow other

groups to preserve and enrich, if they so desire, the cultural values they prize (p. xxv).

Favors for 'others' will now fall from the hands of 'two peoples,' not one, but the emphasis will be on "culture in the humanistic sense of the term" (p. xxv). Here the Commission is very explicit. After dismissing the anthropologist's view of culture ("every aspect of a group's existence" [p. xxx]), the Commission also dismisses "the traditional humanistic sense of the word 'culture' . . . [because] it is too restricted." However,

We will have occasion to use the word in this sense . . . when we examine "the contribution made by the other ethnic groups to the *cultural* [emphasis in original] enrichment of Canada . . . (p. xxxi).

Thus while it is specifically recognized that Canada is made up of "diverse peoples" (p. xxv) and that it is the Commission's intention "to recognize and to point up the cultural and linguistic riches that Canada possesses" (p. xxvi), the Commission's own definition of culture is so structured as to embrace only cultural dualism, not diversity—and that from coast to coast:

... culture is a way of being, thinking, and feeling. It is a driving force animating a significant group of individuals united by a common tongue, and sharing the same customs, habits, and experiences. Clearly the two cultures designated in our terms of reference are those associated with the English and the French languages in Canada. But as there are the two dominant languages, there are two principal cultures, and their influence extends, in varying degrees, to the whole country (p. xxxi).

Having explicitly excluded "the indigenous cultures" from the "'other ethnic groups'" (p. xxvi), confined bilingualism to "Canada's two official languages, English and French" (p. xxvii), and tied biculturalism to bilingualism as defined above, it is easy for the Commission to offer the usual paeans of praise to cultural pluralism and even to recognize the possibility of "German-English, Ukrainian-English, Italian-English bilingualism, or, in Quebec, an Italian-French bilingualism" (p. xxvii), only to dismiss it. Not surprisingly, at the end there is a long "Separate Statement" by Commissioner J. B. Rudnyckyj stressing the importance of "Regional Languages in Canada," in particular those that are "major, stretching through considerable areas of the country." "Among the latter are the Eskimo-Indian languages in the Northwest Territories and the Yukon, Slavic (Ukrainian), and German languages in the Prairie Provinces, and Italian in the metropolitan areas of Toronto and Montreal" (p. 157). But the plan to give some languages the status of regional languages through provincial legislation falls on deaf ears. There is to be only one *proper* understanding of bilingualism in the country, about which any student with the stamina to wade through the ponderous volume should have no illusions.

Among the additional references there are several which refer occasionally to Canada's 'other' peoples even when the primary concern is elsewhere. In *Dear Enemies*,<sup>67</sup> for example, Mrs. Graham makes much of the fact that not all English-speaking Canadians are 'English' (pp. 18, 45, 48) or 'Anglo-Saxon':

Here is a pretty little Chinese laundry, there is a good Turkish restaurant, a Negro night club, a huge Italian construction company, a big Greek shipping



agency, a Ukrainian co-operative, a gigantic Jewish distillery, a Belgian corporation, a Viennese knitting mill, a firm of German contractors, a great Swiss bank . . . over there are SKF and Fina—all called, according to the extraordinary reasoning of the defunct weekly column 'A la Fortune [?] du Mot,'<sup>68</sup> 'Anglo-Saxon enterprises.'

Ouf!

It is obvious that if, with a superhuman effort, one succeeds in eliminating this word, or at least in using it correctly, the immense diversity of Canada begins to be evident . . . (p. 57).

Mme. Roland, in turn, is shocked to learn that "French is taught as a 'foreign' language on a par with German, Spanish, and Italian . . ." (p. 34), and is "distressed to realize the extent to which our country is made up of islands, each with its own identity, each with its own personal concerns. When will we build bridges to unite us at least in some real community of thought?" (p. 35).

Within the paperback covers of *Canadian History in Documents, 1763-1966*<sup>69</sup> are found Riel's "Declaration of the People of Rupert's Land and the North-West," December 8, 1869 (pp. 158-60); his "'List of Rights'," March 1870 (pp. 160-62); the petition to Ottawa of the white and Métis settlers in the North-West, December 1884 (pp. 165-66); extracts from Riel's speech at his trial (pp. 167-70) and from his letter to Archbishop Taché while in prison (pp. 170-73); and extracts also from Sir Clifford Sifton's classic defence of the "stalwart peasant in a sheep-skin coat" in 1922 (pp. 203-5) and from a piece in the *Canadian Courier* on Anglo-Celtic reservations about immigration in 1914 (pp. 205-7). From *Canada and the French-Canadian Question*<sup>70</sup> the student will learn that because "Quebec is not a province like the others, . . . the French-Canadian minorities are not minorities like the others" (p. 24); that the French Canadian (according to Armand Lavergne, 1905), "who has lived in the country since its discovery," resents being made the equal in rights and privileges "to the Doukhobor or the Galician who has just disembarked" (p. 35); and that in 1916 Manitoba should only have abolished German, Ukrainian, and Icelandic bilingual schools and spared the French (p. 149). However, *The Canadian Political Nationality*<sup>71</sup> will probably only confuse the student. First "cultural considerations" and presumably cultural differences are consciously played down: ". . . the decline of British Imperial power has made the concept of a Canadian political nationality divorced from cultural considerations more widespread in English-Canada than ever before" (p. 131). Then they are just as consciously played up: "Political progress" today consists in creating and maintaining large governmental organizations whose geographic areas are extensive and populations "increasingly heterogeneous." Accordingly, "The Canadian experiment of maintaining a federal system which copes effectively with the intractabilities of our cultural and regional particularisms," should it succeed, will have "a great deal which is useful and encouraging to say to those who under circumstances which are infinitely more difficult than ours are attempting to establish and sustain multi-racial and multi-cultural political communities" (p. 132). Are, then, cultural considerations in the development of a Canadian political nationality important? First the answer is 'no,' then it is 'yes'—and the observation in the curriculum guide is most appropriate: "This book may be somewhat difficult for the average Grade X student."<sup>72</sup>

In *Separatism*,<sup>73</sup> a pamphlet containing recent articles published in *Maclean's*, Prime Minister Trudeau first recognizes that there are places in Canada where the Italians, Ukrainians, or Chinese outnumber the French Canadians, and then provides the best one-line introduction to "multiculturalism within a bilingual framework," a policy his government was soon to introduce<sup>74</sup>: "We will be more valuable and more effective members of the world community when we have learned to handle our two official languages and our many cultural traditions at home" (p. 52). However, in a neighboring section, "Western Discontent," a view common to many (perhaps even more mindful of demographic realities than the prime minister himself) is expressed by a Ukrainian-Canadian lawyer in Winnipeg: "You are going to go into a community where maybe 80 percent of the people speak Ukrainian, and because 10 percent of them speak French, French is to be raised above Ukrainian. Does this make sense?" (p. 58). The pamphlet pulls no punches and should enjoy a long life for the problems it raises are still with us.

But the three most important references in the additional category are undoubtedly *Canada: Unity in Diversity*,<sup>75</sup> *The Canadian Family Tree*,<sup>76</sup> and *The Cultural Contribution of the Other Ethnic Groups*.<sup>77</sup> The first, despite the attractive title, is a history of Canada with one very important difference: three of the four historians are French-speaking Canadians, Professors Jean Hamelin, Fernand Ouellet, and Marcel Trudel of Laval, Carleton, and Ottawa universities respectively. The last of the quartet is Paul G. Cornell of Waterloo. According to the introduction by York University's William Kilbourn, another professional historian, the book "focuses its primary attention on the diverse regions and cultures that have made up our rich and varied history" and seeks to redress the balance between "English-Canadian . . . French-Canadian and New Canadian viewpoints" (p. vii). Unfortunately, it falls far short of the mark. Its basic premise is that of "the Laval school of historians, as represented in three of this book's authors." Their choice for Canada is Henri Bourassa's choice, "this book's greatest single hero [for Kilbourn], if there are any heroes in it at all." "This choice stands for a truly bicultural Canadianism, a new and equal partnership of the two founding cultures throughout Canada . . . (p. x)."

Not surprisingly, the diversity is confined largely to very fair, highly informative, and lengthy accounts of the Indians and Eskimos, the "Amerinds" ("the term 'native' is easily confused with European settlers in America, and . . . 'savage' carries derogatory connotations" [p. 13]); the people of New France (including an interesting, three-paragraph discussion of some four thousand slaves over a 125-year period [p. 54]); the Métis and Riel, who, in Hamelin's hands, comes off rather worse than 'the insignificant' Scott, whose brazenness is entirely ignored; and the religious variations among the whites. "The French-Canadian ethnic group [in New France]," we learn from Trudel, "is not as pure in origin as it is usually thought to be . . . . Traces of other groups, such as Spanish, Portuguese and Germans have also been found" (p. 51). But though Saint Lawrence society reflected "the characteristics of a number of nationalities (English, Dutch, Swedish and Spanish), it was truly a unique Canadian society" (p. 106). The Germans are mentioned in connection with Lunenburg (pp. 119, 123) and Waterloo county, their important centre in Ontario (pp. 193, 373), and the



arrival of the Mennonites (pp. 290, 302), Icelanders (p. 290), and Doukhobors (p. 302) is recorded. But the other 'other' peoples are nowhere in sight and the put-down for those arriving before 1914 could not be greater; the swamp could not be deeper or wider. English-speaking historians had been indifferent enough, but nothing can equal Hamelin's snub in the "Development of the Prairie West":

The statute of 1905 established juridical uniformity, not social uniformity. The western provinces formed a new region quite different from the older provinces. In 1911, the West differed from the East and the Centre in the composition of its population. Very few people had been born there; the farmers came from Ontario, the United States, the United Kingdom and from northern and central Europe. The diversity of mother tongues points to the diversity of nationalities. The extensive cultivation and the system of townships meant a low density of population, and the number of men greatly exceeded the number of women in the West. The populace was young and dynamic. In 1916, the average age was less than twenty-five years. The Prairies were equally distinctive in the kind of life led by their inhabitants. In 1901, 75 per cent of the population was rural, 65 per cent in 1911, whereas Quebec's rural population was only 51.6 per cent and the majority of Ontario's population was urban. The West was distinctive, again, being a religious potpourri. As well as the Catholics, Methodists, Presbyterians and Congregationalists found in the other provinces, there were Mennonites, Doukhobors, Lutherans, Greek Catholics, Greek Orthodox and a profusion of smaller sects (p. 297).

The implication is clear: the religious groupings are important because they will last; the multiplicity of tongues unimportant because they will, or should, not. And so 'Ivan Banyak' learns that he can expect no more at the hands of 'Jean Baptiste' than 'John Bull,' 'Jack Canuck,' and of course 'Uncle Sam.' "Prosperity [in the 1920s, writes Hamelin] fostered massive exports of wheat and massive entries of immigrants" (p. 415); "... and in the early years of peace [after the second world war, writes Cornell] a new wave of immigrants flowed in to augment the city populations further. 'New Canadians,' especially from southern and central Europe, quickly became a significant element in all large cities" (pp. 503-4). Significant in what sense? The Anglo-Celtic tradition of neglect is reinforced by a new group from whose sensibilities as a minority one could have expected more. The 'new' history, however, is as inadequate as the 'old,' but now even the title, a long-standing cliché popular with 'the ethnics,' is also preempted. And the reason is not far to seek. To Bourassa, according to Hamelin, "the settling of the West" was a factor in "overthrowing the established order" (p. 351):

It was his wish that French and Catholic communities should spread throughout the Dominion. For Bourassa, not only was cultural duality the essence of Canadian nationality, but it was a condition of its existence. Only this duality would allow Canada to assert itself against America and resist Americanization (p. 352).

Bourassa attracted supporters and in 1903 "the Nationalist League" was formed, one of whose objectives was "to rebuild Canada around cultural duality" (*ibid.*). And so, the authors of *Canada: Unity in Diversity* are merely the carpenters of the late 1960s, convinced that the force of "the massive immigration in the West... threatening the influence of French Canada in Confederation" (p. 353), which so worried Bourassa, has been spent and after an unfortunate hiatus of some sixty years the task of building the Canadian nation on proper foundations can be resumed with

no more than a passing glance at the 'other' peoples, who constitute 43 per cent of the Canadian population west of the Ottawa valley.

*The Canadian Family Tree*, as helpful as it is, also cannot be taken seriously. Even though it does show how early and how extensive was the influence of most of Canada's 'other' peoples, it has several major weaknesses. First, it is a government document which carefully omits or (as in the case of Japanese coastal evacuation during the second world war) merely skirts the unpleasant and controversial. Secondly, it is integration- and thus assimilation-oriented. Both points are illustrated below:

The more even distribution of the Japanese over the whole country has made it easier for them to become integrated into Canadian life. Thus their removal from the west coast, although a controversial issue, has not been without its advantages to them (p. 196).

Thirdly, it does not treat important groups such as the Blacks, Doukhobors, Hutterites, and Mennonites in their own right but subsumes the first under Americans, the second under Russians, and the third and fourth under Germans. Fourthly, it resorts to a tedious recitation of obscure names in the interests of the so-called 'contributions-approach,' which the first volume of the Commission on Bilingualism and Biculturalism disposed of handily:

Everett Hughes 20 years ago called attention to the absurdity of judging a group's right to exist "on the basis of the quality of its cultural peculiarities, called for this purpose its 'cultural contributions,'" he was speaking at the time of French Canadians, but his words apply also to the other groups (p. xxvi).

But the most serious inadequacy of *The Canadian Family Tree* is its penchant for lauding nearly everything but a group's linguistic resources. The latter are simply ignored—and ignored also, as a result, is the most important question of all: What is to be Canada's policy towards languages other than English and French? Compared to the latter, the value question in Grade X, "Should Canada have two official languages?" is now surely an academic one.

Nor unfortunately does *The Cultural Contribution of the Other Ethnic Groups*, which shares some of the above weaknesses, help in the matter of language. The Commission's recommendations relegate 'other' languages to the optional category and it is clear that they are merely to be languages of study, not instruction, even at the elementary school level (pp. 13, 139). The study "of the other official language should be obligatory for all students in Canadian schools" (p. 142), and Book II actually contains a recommendation to that effect,<sup>78</sup> thereby exploding the latest Canadian slogan: 'No one in Canada will be forced to learn French.' But such hypocrisy ought not to surprise anyone. As valuable as Book IV may be as an historical and sociological document, its basic orientation is assimilationist. Canada's 'other' peoples are "to integrate with either of the two societies" (p. 5), the "two dominant cultures, the French and British" (p. 13). Thus the Commission merely substitutes a choice between two melting pots where one existed before, and in its eagerness to protect biculturalism, it not only rejects multiculturalism (p. 12) but in the process condemns to oblivion the very bilingualism it wishes to foster. For the Commission recognizes that



It is a fact that members of non-British, non-French cultural groups, or at least most members, tend to accept the Canadian duality with reluctance, preferring by far a concept which could be designated as simply "Canadian." When they must choose between the two societies, with all that the choice implies, they lean quite naturally towards the stronger, namely the Anglophone (p. 6).

Such being the case, the future of unilingualism and uniculturalism, rather than bilingualism and biculturalism, is assured. And in the end, to safeguard the French language, the children of Canada's 'other' peoples are not encouraged to see bilingualism in practical terms; such nascent linguistic ability as may still exist is not encouraged to develop. Yet English-German bilingualism in Saskatchewan or Ontario, for example, or French-English-Italian trilingualism in Quebec would strengthen the principle of bilingualism in all parts of Canada, thereby greatly enhancing the survival prospects of English-French bilingualism itself. But this presumably would give the individual freedom of choice in matters of language learning,<sup>79</sup> an idea which might render the portrayal of all of Canada's 'other' peoples less superficial, but one which has apparently been much too elusive for any of the writers whose materials have hitherto been authorized or recommended for study in the high schools of Alberta.

### *Conclusion*

The portrayal of Canada's 'other' peoples in history and social studies textbooks at the senior high school level in Alberta has been unfortunately most inadequate. To date, only the "Amerinds" have been wholly rehabilitated. The Métis, and Riel especially, are only a step away; only the perspective on the prickly Thomas Scott needs to change. But for the other 'other' peoples the season has hardly begun. Scholars can either take to the fields (libraries, archives, their own studies) and join in the hunt (research and write extensively); continue to fire blank cartridges (slogans and clichés) in their backyards (most contemporary textual materials); or, alternatively, continue to refuse to take down (ignore) their rifles (pens) altogether on the subject of 'birds' (which too come in many varieties!) in favor of 'bigger game' (the politicians on their national and international stalking grounds). With even the existing literature on the subject,<sup>80</sup> to follow either of the last two alternatives exclusively would be a great pity.

<sup>1</sup> From the terms of reference of the Royal Commission on Bilingualism and Biculturalism and the title of that Commission's fourth volume, *The Cultural Contribution of the Other Ethnic Groups* (Ottawa: Queen's Printer, 1970).  
<sup>2</sup> *Annual Report of the Department of Education of the Province of Alberta*, 1912 (Edmonton: Government Printer, 1913), 12; *ibid.*, 1935 (Edmonton: King's Printer, 1936), 20.  
<sup>3</sup> The statistical information is derived from the Report of the Royal Commission on Bilingualism and Biculturalism, Book IV, *The Cultural Contribution of the Other Ethnic Groups* (Ottawa: Queen's Printer, 1970), 247-66 and the federal government's "Green Paper," *Immigration and Population Statistics* (Ottawa: Queen's Printer, 1974), 11-12. The tables below furnish further details.

TABLE I  
PERCENTAGE OF 'OTHER' PEOPLES IN CANADA

Census Year	Percentage
1901	12.25
1911	15.90
1921	16.68
1931	19.38
1941	20.05
1951	21.28
1961	25.77
1971	26.73

TABLE II  
PERCENTAGE OF 'OTHER' PEOPLES BY PROVINCES

Province	Census Year							
	1901	1911	1921	1931	1941	1951	1961	1971
Prince Edward Island	1.46	1.43	1.12	1.50	1.62	2.23	3.54	4.45
Nova Scotia	12.04	12.24	11.38	12.54	11.52	13.43	16.80	12.30
New Brunswick	4.12	4.23	3.56	3.82	3.65	4.54	5.90	5.32
Quebec	2.21	4.01	4.85	5.92	5.52	5.83	8.57	10.97
Ontario	13.38	14.74	13.75	17.26	18.06	22.60	30.08	31.16
Manitoba	29.37	33.35	35.81	40.72	43.34	44.81	47.87	49.97
Saskatchewan	53.19	41.08	41.59	47.00	49.95	51.46	53.16	51.80
Alberta	46.02	37.01	34.95	41.55	44.43	45.94	48.57	47.40
British Columbia	37.88	29.77	24.00	27.27	27.46	30.65	36.54	37.70

TABLE III  
PERCENTAGE OF GERMANS IN CANADA AND SELECTED PROVINCES

Census Year	Canada	Nova Scotia	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
1901	5.78	8.93	9.31	10.68	12.86	10.73	3.25
1911	5.60	7.90	7.66	7.58	14.42	11.13	3.24
1921	3.35	5.16	4.45	3.19	9.00	6.01	1.39
1931	4.56	5.28	5.07	5.44	14.02	10.08	2.45
1941	4.04	2.60	4.41	5.68	14.54	9.76	2.74
1951	4.43	4.47	4.83	6.99	16.30	11.49	4.75
1961	5.57	6.17	6.43	9.97	17.10	13.76	7.30
1971	6.10	5.19	6.17	12.45	19.44	14.19	9.07

TABLE IV  
PERCENTAGE OF SCANDINAVIANS IN CANADA AND SELECTED PROVINCES

Census Year	Canada	Manitoba	Saskatchewan	Alberta	British Columbia
1901	.58	4.67	1.59	5.40	2.73
1911	1.56	3.82	7.14	7.90	4.35
1921	1.90	4.37	7.71	7.56	3.62
1931	2.20	4.48	7.89	8.13	4.88
1941	2.12	4.47	7.68	7.97	5.08
1951	2.02	4.24	7.51	7.55	5.63
1961	2.12	4.10	7.30	7.20	5.94
1971	2.15	3.52	6.56	6.92	5.31



TABLE V  
PERCENTAGE OF UKRAINIANS IN CANADA AND SELECTED PROVINCES

Census Year	Canada	Manitoba	Saskatchewan	Alberta
1901	.10	1.53	1.20	.87
1911	1.05	6.73	4.52	4.70
1921	1.21	7.23	3.71	4.05
1931	2.17	10.51	6.88	7.64
1941	2.66	12.30	8.90	9.03
1951	2.82	12.72	9.43	9.26
1961	2.59	11.43	8.52	7.95
1971	2.69	11.52	9.28	8.32

TABLE VI  
PERCENTAGE OF ASIATICS IN CANADA AND BRITISH COLUMBIA

Census Year	Canada	British Columbia
1901	.44	10.93
1911	.60	7.86
1921	.75	7.57
1931	.81	7.34
1941	.64	5.19
1951	.52	2.20
1961	.67	2.47
1971	1.03	3.48

TABLE VII  
PERCENTAGE OF INDIANS AND ESKIMOS IN CANADA AND SELECTED PROVINCES

Census Year	Canada	Manitoba	Saskatchewan	Alberta	British Columbia
1901	2.38	6.38	19.43	18.38	16.20
1911	1.46	2.87	2.38	3.05	5.14
1921	1.29	2.27	1.71	2.47	4.27
1931	1.24	2.21	1.65	2.08	3.54
1941	1.09	2.12	1.49	1.58	3.04
1951	1.18	2.71	2.68	2.26	2.45
1961	1.21	3.19	3.31	2.14	2.38
1971	1.46	4.35	4.20	2.70	2.38

<sup>4</sup> W. H. P. Clement, *The History of the Dominion of Canada* (Toronto: William Briggs. The Copp, Clark Company, Limited, 1897), vi.

<sup>5</sup> *Annual Report of the Department of Education of the Province of Alberta*, 1907 (Edmonton: Government Printer, 1908), 105.

<sup>6</sup> D. M. Duncan, *The Story of the Canadian People* (Toronto: The Macmillan Co. of Canada, Limited, 1917). First published in 1904.

<sup>7</sup> *Regulations of the Department of Education Relating to Courses of Studies and Annual Examinations for Grades IX, X, XI, and XII for the year ending June 30th, 1924* (Edmonton: King's Printer, n.d.), 26.

<sup>8</sup> W. L. Grant, *History of Canada* (new and rev. ed.; London: William Heineman; Montreal: Renouf Publishing Company, 1927). First published in 1916.

<sup>9</sup> *Regulations of the Department of Education For the Year Ending June 30th, 1938 Relating to the Programme of Studies and Annual Examinations for High Schools (Grades X, XI, and XII)* (Edmonton: King's Printer, 1937), 81.

<sup>10</sup> A. B. Buckley and W. J. Robertson, *High School History of England and Canada* (Toronto: The Copp, Clark Company, Limited, 1902). First published in 1891, the text was adopted in the North-West Territories in the same year. *Report of the Board of Education for the North-West Territories from September 10, 1890 to September 2, 1891* (Regina: R. B. Gordon, 1892), 13, 15, 17.

<sup>11</sup> The date and numbers vary: "In 1750 the sailing ship *Anne* left Rotterdam for Halifax with 312 Germans aboard. They were part of a group of three thousand who had been recruited as settlers for the colony of Nova Scotia. Three years later about 1,500 Germans from the Halifax area moved down the coast to form a settlement of their own which they called Lunenburg." Canadian Citizenship Branch, Department of the Secretary of State, *The Canadian Family Tree* (Ottawa: Queen's Printer, 1967), 132.

<sup>12</sup> *The Cultural Contribution of the Other Ethnic Groups*, 248.

<sup>13</sup> *The Canadian Family Tree*, 80.

<sup>14</sup> *Report of the Royal Commission on Education in Ontario 1950* (Toronto: King's Printer, 1950), 535.

<sup>15</sup> *Programme of Studies for the High School, Bulletin III* (Edmonton: King's Printer, 1939) 33. Cited hereafter as *Bulletin III*.

- <sup>16</sup> F. R. Scott, *Canada Today; A Study of Her National Interests and National Policy* (London, Toronto, New York: Oxford University Press, 1939). The book was prepared for the British Commonwealth Relations Conference held in Sydney, Australia in 1938 and was issued under the auspices of the Canadian Institute of Internal Affairs.
- <sup>17</sup> V. Anderson, *Problems in Canadian Unity* (Toronto: Thomas Nelson and Sons, Limited, 1938). The book contained the papers and addresses delivered at the seventh conference of the Canadian Institute on Economics and Politics held at Lake Couchiching in 1938 and was issued under the auspices of the National Council of the YMCA in Canada.
- <sup>18</sup> A. Siegfried, *Canada* (London: Jonathan Cape Ltd., 1937).
- <sup>19</sup> *Bulletin III*, 38.
- <sup>20</sup> Scott, ix.
- <sup>21</sup> *Bulletin III*, 38.
- <sup>22</sup> *Senior High School Bulletin 2 (Interim Edition 1953-54)* (Edmonton: Queen's Printer, 1953), 9.
- <sup>23</sup> *Programme of Studies for the High School, Bulletin A* (Edmonton: King's Printer, 1944), 7. Cited hereafter as *Bulletin A*.
- <sup>24</sup> *Programme of Studies for the High School, Regulations of the Department of Education for the Year Ending June 30th, 1946* (Edmonton: King's Printer, 1945), 57.
- <sup>25</sup> L. A. Bagnall and D. Norton, *Contemporary Problems; National, Imperial and Internal* (rev. ed.; Calgary: Western Canada Institute Limited [1946]). The original was published by Bagnall in 1939.
- <sup>26</sup> G. W. Brown, *Building the Canadian Nation* (rev. ed.; Toronto and Vancouver: J. M. Dent & Sons (Canada) Limited, 1950). The original was published in 1942.
- <sup>27</sup> *Bulletin A*, 7.
- <sup>28</sup> *Programme of Studies for the High School, Regulations of the Department of Education for the Year Ending June 30th, 1946* (Edmonton: King's Printer, 1945), 58.
- <sup>29</sup> *Programme of Studies for the High School, Bulletin II* (Edmonton: King's Printer, 1946), 12.
- <sup>30</sup> *Senior High School Curriculum Guide for Social Studies 10, 20, 30 and 33 (Interim)*, Province of Alberta, Department of Education, September, 1967, 52.
- <sup>31</sup> P. H. Landis and J. T. Landis, *Social Living; Principles and Problems in Introductory Sociology* (Boston: Ginn and Company, 1938) was introduced with Brown in 1944-45 as a general reference in Social Studies 2 (*Bulletin A*, 7). Thereafter, it was recommended regularly as a secondary or general reference in Social Studies 1 (10) and 2 (20). In 1953 it became both a recommended student reference (as an alternate to J. Macdonald, *The Community, First Steps in Sociology* (Toronto, Vancouver: J. M. Dent & Sons (Canada) Limited, 1938), and a teacher reference in Sociology 1 (*Senior High School, Bulletin 2 (Interim Edition, 1953-54)* (Edmonton: Queen's Printer, 1953), 25 and in 1955 in Sociology 20 ("Sociology 20, Reprinted from Bulletin 2, 1953 edition," 3 *ℒ*.) Revised twice (P. H. Landis, *Social Living; Sociology and Social Problems* (1958) and P. H. Landis, *Sociology* (1964), it ceased to be recommended reading in the social studies in 1970 (*Senior High School Curriculum Guide Social Studies* 1970, Province of Alberta, Department of Education, 23-31), but there is no evidence that it has been replaced as the text book in Sociology 20 (*Curriculum Guide For Sociology 20*, Province of Alberta, Department of Education, September, 1965, 5).
- <sup>32</sup> A. R. M. Lower and J. W. Chafe, *Canada—A Nation; And How It Came To Be* (2nd rev. ed.; Toronto, New York, London: Longmans, Green and Company, 1958). First published in 1948.
- <sup>33</sup> *Senior High School Bulletin 2, Interim Edition 1952-53*, Province of Alberta, Department of Education, 1952, 9, 19.
- <sup>34</sup> For the meaning and origins of the term as applied to Canada, see J. M. Gibbon, *Canadian Mosaic; The Making of a Northern Nation* (Toronto: McClelland & Stewart Limited, 1938), viii-x.
- <sup>35</sup> *Senior High School Bulletin 2, Interim Edition 1952-53*, Province of Alberta, Department of Education, 1952, 9.
- <sup>36</sup> *Senior High School Curriculum Guide for Social Studies 10 and 20 (Tentative Edition)*, Province of Alberta, Department of Education, September 1953, 24.
- <sup>37</sup> C. C. Goldring, *Canadian Citizenship* (Toronto and Vancouver: J. M. Dent & Sons (Canada) Ltd., 1948). First published in 1937 as *We Are Canadian Citizens; A Community Civics Reader for Grades VII, VIII and IX*, the book was recommended for Alberta junior high schools in *Programme of Studies for the Intermediate School (Grades VII, VIII, and IX) and Departmental Regulations Relating to the Grade IX Examinations*. Authorized by the Department of Education [Edmonton: n.d. (1937)], 33, 34.
- <sup>38</sup> *Classroom Bulletin on Social Studies*, No. 1, December 1943 (Edmonton: King's Printer, 1943).
- <sup>39</sup> *Ibid.*, No. 3, October 1943 (Edmonton: King's Printer, 1943), 24-37.
- <sup>40</sup> *Ibid.*, No. 14, February 1948 (Edmonton: King's Printer, 1948), 3, 14.
- <sup>41</sup> *Bulletin A*, 13. The classroom bulletin supplemented specific readings in Brown, *Building the Canadian Nation*, 54-55 (Talon's immigration policy), 113-14 (immigration to Nova Scotia before 1770), 168 (immigration to the Maritimes in the 1770s), 71-72 (Loyalist settlements in Lower and Upper Canada), 193-204 (the "Great Migration" from the British Isles, 1815-50), 365-69 ("Newcomers From Many Lands"), "and appropriate readings from others of the reference books."
- <sup>42</sup> *Classroom Bulletin on Social Studies*, No. 28, March 1952 (n.p., n.d.), 32-33.
- <sup>43</sup> *Senior High School Curriculum Guide for Social Studies 10, 20 and 30*, Province of Alberta, Department of Education, September 1955, 118.
- <sup>44</sup> B. Lawrence, L. C. Mix, C. S. Wilkie, E. McInnis, *Canada in the Modern World* (Toronto and Vancouver: J. M. Dent & Sons (Canada) Limited, 1955).
- <sup>45</sup> E. McInnis, *North America and the Modern World* (Toronto and Vancouver: J. M. Dent & Sons (Canada) Limited, 1945).
- <sup>46</sup> *Senior High School Curriculum Guide for Social Studies 10, 20, 30 and 33 (Interim)*, Province of Alberta, Department of Education, September 1967, 104.



- <sup>47</sup> H. Palk, *The Book of Canadian Achievement* (Toronto and Vancouver: J. M. Dent & Sons (Canada), Limited, 1951).
- <sup>48</sup> A. A. Shea (ed.), *Culture in Canada* (Toronto: Core, 1952.)
- <sup>49</sup> *Senior High School Curriculum Guide for Social Studies 10, 20 and 30*, Province of Alberta, Department of Education, September 1955, 64.
- <sup>50</sup> *Senior High School Curriculum Guide for Social Studies*, Province of Alberta, Department of Education, 1970.
- <sup>51</sup> *Interim Senior High School Curriculum Guide for Social Studies 10, 20 and 30 for 1964-65*, Province of Alberta, Department of Education, 21.
- <sup>52</sup> *Senior High School Curriculum Guide for Social Studies*, Province of Alberta, Department of Education, 1971, 34.
- <sup>53</sup> Report of the Royal Commission on Bilingualism and Biculturalism, Book I. *The Official Languages* (Ottawa: Queen's Printer, 1967).
- <sup>54</sup> *The Canadian Family Tree* (Ottawa: Queen's Printer, 1967), prepared by the Canadian Citizenship Branch. Department of the Secretary of State and published in co-operation with the Centennial Commission, Ottawa.
- <sup>55</sup> Report of the Royal Commission on Bilingualism and Biculturalism, Book IV. *The Cultural Contribution of the Other Ethnic Groups* (Ottawa: Queen's Printer, 1970).
- <sup>56</sup> J. S. Moir and D. L. M. Farr, *The Canadian Experience* (Toronto, Winnipeg, Vancouver: The Ryerson Press, 1969).
- <sup>57</sup> J. A. Lower, *Canada; An Outline History* (Toronto: The Ryerson Press, 1966).
- <sup>58</sup> G. F. G. Stanley, *Louis Riel* (Toronto: The Ryerson Press, 1963).
- <sup>59</sup> G. W. Brown and A. S. Merritt, *Canadians And Their Government* (Toronto, Vancouver: J. H. Dent & Sons (Canada) Limited, 1961).
- <sup>60</sup> *Senior High School Curriculum Guide for Social Studies*, Province of Alberta, Department of Education, 1971, 42.
- <sup>61</sup> *The Prairie Provinces; Alienation and Anger* (Toronto, Montreal: McClelland and Stewart Limited, 1969).
- <sup>62</sup> *Ontario; The Linchpin* (Toronto, Montreal, McClelland and Stewart Limited, 1969).
- <sup>63</sup> *British Columbia; The Great Divide* (Toronto, Montreal: McClelland and Stewart Limited, 1969).
- <sup>64</sup> *Quebec; The Threat of Separation* (Toronto, Montreal: McClelland and Stewart Limited, 1969).
- <sup>65</sup> *Canada 70; A Summary Coast to Coast* (Toronto, Montreal: McClelland and Stewart Limited, 1969).
- <sup>66</sup> Report of the Royal Commission on Bilingualism and Biculturalism, Book I, *The Official Languages* (Ottawa: Queen's Printer, 1967).
- <sup>67</sup> G. Graham and S. C. Rolland, *Dear Enemies* (Toronto: The Macmillan Company of Canada Limited, 1965).
- <sup>68</sup> Published in *Le Devoir*.
- <sup>69</sup> J. M. Bliss (ed.), *Canadian History in Documents, 1763-1966* (Toronto: Ryerson Press McGraw-Hill Company of Canada Limited, 1966).
- <sup>70</sup> R. Cook, *Canada and the French-Canadian Question* (Toronto: Macmillan of Canada, 1966).
- <sup>71</sup> D. V. Smiley, *The Canadian Political Nationality* (Toronto & London: Methuen, 1967).
- <sup>72</sup> *Senior High School Curriculum Guide for Social Studies*, Province of Alberta, Department of Education, 1971, 45.
- <sup>73</sup> *Canadian Issues: Separatism* (rev. ed., Toronto: Maclean-Hunter Learning Materials Company, 1971).
- <sup>74</sup> *House of Commons Debates*, October 8, 1971, 8545-48, 8580-85.
- <sup>75</sup> P. G. Cornell, J. Hamelin, F. Ouellet, M. Trudel, *Canada: Unity in Diversity* (Toronto, Montreal: Holt, Rinehart and Winston of Canada, Limited, 1967).
- <sup>76</sup> Canadian Citizenship Branch, Department of the Secretary of State, *The Canadian Family Tree* (Ottawa: Queen's Printer, 1967).
- <sup>77</sup> Report of the Royal Commission on Bilingualism and Biculturalism, Book IV, *The Cultural Contribution of the Other Ethnic Groups* (Ottawa: Queen's Printer, 1970).
- <sup>78</sup> Report of the Royal Commission on Bilingualism and Biculturalism, Book II, *Education* (Ottawa: Queen's Printer, 1969), 230-31, 302.
- <sup>79</sup> For a further development of this position, see M. R. Lupul, "A Just Language Policy For A 'Just Society,'" *Report of Manitoba Mosaic, October 13-17, 1970* [Winnipeg: Extension Division, University of Manitoba, 1971], 68-75.
- <sup>80</sup> For a comprehensive bibliography, see A. Gregorovich, *Canadian Ethnic Groups Bibliography* (Toronto: Ontario Department of the Provincial Secretary and Citizenship, 1972). A few of the more recent, better works include the following: M. Davis and J. F. Krauter, *The Other Canadians; Profiles of Six Minorities* (Toronto: Methuen, 1971); J. L. Elliott (ed.), *Immigrant Groups* (Scarborough: Prentice-Hall of Canada Ltd., 1971); J. Norris, *Strangers Entertained; A History of the Ethnic Groups of British Columbia* (Vancouver: British Columbia Centennial '71 Committee, 1971); H. Palmer, *Land of the Second Chance; A History of Ethnic Groups in Southern Alberta* (Lethbridge: The Lethbridge Herald, 1972); P. H. Migus, *Sounds Canadian; Languages and Cultures in Multi-Ethnic Society* (Toronto: Peter Martin Associates Limited, 1975). H. Palmer (ed.), *Immigration and the Rise of Multiculturalism* (Toronto: Copp Clark Publishing, 1975).

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## Prescriptive Teaching: Changes in Stage of Logico-Mathematical Thinking and Spatial Development in a Group of Opportunity Class Children

*Prescriptive teaching is an approach employed by special educators working with exceptional children. The present paper considers changes in stages of logico-mathematical thinking in subjects who were included in a prescriptive teaching program of seven months' duration. The results indicate potential value of prescriptive teaching in accelerating development in exceptional children. (Dr. Whyte is Professor in the Department of Educational Psychology, The University of Alberta.)*

Prescriptive teaching is one of the innovative alternatives proposed when it became evident that traditional special education programs were at best producing no better results and at worst producing even less effective results than holding the special child in the regular classroom.

This paper is concerned with one aspect of intellectual functioning, logico-mathematical concepts, and with development of representational space in opportunity class children who were included in a prescriptive teaching program of seven months' duration. The data are from a larger study, *The Efficacy of Prescriptive Teaching for the Exceptional Child*.

### *Subjects*

Fifty-three subjects were selected from a rural-urban county school system in Alberta for the experimental program. Children from six "opportunity" classes were selected. Seventeen subjects were selected from "opportunity" classes in a similar adjoining county as the contrast group. Opportunity class children are characterized mainly by cultural deprivation, intellectual retardation at the Educable Mentally Retarded—borderline levels, and specific learning disabilities. I.Q. and C.A. characteristics of the Experimental and Contrast Subjects are provided in Table 1.

The Experimental Subjects were chosen from three schools, two classes



TABLE 1  
SAMPLE STATISTICS

Treatment Groups	N	C.A.*			I.Q.**		
		$\bar{X}$	S.D.	Range	$\bar{X}$	S.D.	Range
Experimental	53	110.9	25.5	74-171	74.5	13.6	46-107
Contrast	17	107.9	24.7	69-143	71.7	10.1	50- 93

\* Ages are presented as months

\*\* WISC Full Scale IQ

per school and included almost the entire population in one county school system segregated in opportunity classrooms. The Contrast Subjects were chosen from three opportunity classrooms in one school and included the entire segregated school population labelled “opportunity class children” in that county.

Procedure

Subjects were pretested at the beginning of a school year and posttested in May of the same school year. During the interim period prescriptive teaching from extensive assessment data in intellectual, language, perceptual-motor, social, and academic areas was carried out by resource teachers and teacher aides. Briefly, the educational program consisted of remediating areas of deficit and teaching to areas of strength.

Tests

Stage of logico-mathematical and representational space functioning was assessed with Piagetian tasks. The tasks included:

- I. Tests of Logical Thinking:
  - 1. Multiplication of classes: ability to classify one object by multiple criteria.
  - 2. Inclusion of classes: ability to compare a subclass with a class or a part with the whole.
- II. Mathematical Concepts' Tests:
  - 1. Conservation of number: an understanding that a given number of objects remains unchanged regardless of how the group is arranged.
  - 2. Seriation: ability to order and compare two seriated groups drawn to a different scale, regardless of how the groups are ordered.
  - 3. Conservation of length: an understanding that rods of equal length remain equal even though they are compared from different positions.
  - 4. Measurement of length: ability to use measuring standards.
- III. Representational Space Tests:
  - 1. Localization of topographical positions: ability to copy movements from left to right and top to bottom from the same plane and when movements require 180° of change.
  - 2. Concepts of left and right: an understanding of the two sides of the body which allows for location of left and right on one's own body, on the body of a person facing you, and an understanding that left and right are relative rather than absolute terms.
  - 3. Coordination of perspectives (the three mountains test): observation

of a succession of partial perspectives, each one limited to the point of view established by one or another partial perception, and an integration of these partial perspectives in a general system which includes simultaneously all the relationships existing between the observer and each of the objects as well as between the objects themselves.

### *The Teaching Program*

Resource teachers and teacher aides were provided to assist the teachers in the special classes in implementing the program. Undergraduate and graduate special education students at the University of Alberta were employed as teacher aides and resource teachers for the children in the Experimental classes. The special class teachers continued unassisted with a traditional program for the Contrast Group. The emphasis for the latter group was on developing academic skills and modifying behavior.

The prescriptive teaching program did not aim directly at teaching the concepts required for solution of the test tasks. An individual program was designed for each child based on data from the intellectual, language, perceptual-motor, and academic tests. The programs were implemented whenever possible in group situations for a number of reasons. Piaget has stressed that the presence of four criteria is essential before a child will become operational in his thinking: (1) a prerequisite level of maturity; (2) presentation of experiences necessary to move the child to the next stage of functioning; (3) social interaction; (4) reversibility of thought. Mental age on the Stanford Binet was used to determine whether presentation of particular types of materials and experiences was feasible. Children were taught in small groups of from two to six to provide an opportunity for social interaction. Manipulation of materials by the children during structured experience situations where the teacher asked questions critical to discovery learning was used to develop reversibility of thought.

In general, information from standardized tests was used as follows. If a child showed an overall low level of functioning on the verbal subtests of the WISC (scaled scores below 7) a formal program to teach children "to think" such as the Thurstone Learning to Think Series was used. In this program, as well as all other programs, verbalization was stressed; e.g., the teacher would ask: "Are these two pictures the same or different? How are they the same? Can you prove they are the same? How are they different? Look at each bit of detail. In what direction are the heads pointing? Are they the same in size? What is each (kitten) doing? Are the whiskers the same? How are the whiskers on this kitten different from the whiskers on that kitten?" In short, the children were made to justify every answer. This skill transferred to the "why" questions in the Piagetian tasks.

If a child showed an overall low level of functioning on the performance subtests of the WISC, it indicated usually that perceptual-motor deficits were present. Tests such as the Bender Gestalt, Purdue Perceptual Motor Survey, Harris Test of Lateral Dominance, Frostig, and Draw-A-Man were administered to verify the hypothesis and to indicate the exact nature of the deficit. Treatment varied according to the nature of the deficit and age of the child. For example, if on the Purdue Perceptual Motor Survey the



profile showed splintered skills, a Kephart type program aimed at improving specific areas of deficit was used. If there was overall immaturity of functioning, a Cratty type program aimed at teaching the child body image and how to use his body was used. The latter program was generally used with young retarded children and the former with learning disability children with motor deficits. It was expected the skills acquired in perceptual-motor training would transfer to representational space areas.

The language development program relied heavily on diagnostic information from the ITPA. It was hypothesized that language training would transfer to all verbal areas and possibly would increase stage of development in the logico-mathematical areas. To this end, particular emphasis was placed on development of grammar and syntax and vocabulary development. All aspects of the program aimed at vocabulary development, both in quantity and quality. The children were introduced to new labels and encouraged to use them. They were questioned regarding class names, e.g., oranges and apples are both round; both are fruit. Bananas are also fruit but not round. What is it that makes all three fruit? In this way children were led to progressively higher and higher classifications. They were forced to describe objects along many dimensions in order to increase discriminating abilities.

Comparison labels were taught in many contexts, e.g., this is taller but this is wider; pencils are skinny, crayons are fat. It was hypothesized that discriminating abilities and increased comparison labels taught with a wide variety of materials and during many experiences would transfer to development of logico-mathematical areas.

### *Questions*

1. Will clinical teaching programs aimed at ameliorating specific deficits in language diagnosed by currently available standardized tests, increase stage of development in logico-mathematical functioning as assessed by Piagetian tasks?
2. Will clinical teaching programs aimed at ameliorating specific deficits in perceptual-motor functioning as diagnosed by currently available standardized tests, increase stage of development in representational space as assessed by Piagetian tasks?

### *Analysis of data*

Means and standard deviations were found for each of the variables for subjects divided by treatment group, and for subjects divided into three C.A. ranges. From these data gain scores were determined. Because of the weaknesses inherent in gain score statistics, analysis of covariance was carried out using pre-measures as the covariate. Where significant overall effects were detected, Scheffé tests on adjusted means were carried out for pairs of groups using .05 significance level.

### *Results*

Gain scores from pre- to posttest were determined by comparing the means from both tests. Gain scores in logico-mathematical thinking and representational space are presented in Table 2. For these tasks Piagetian stages are numbered from 0 to 3, i.e., from sensorimotor (0) to concrete

TABLE 2  
GAIN SCORES IN LOGICO-MATHEMATICAL THINKING AND  
REPRESENTATIONAL SPACE DEVELOPMENT: EXPERIMENTAL VS.  
CONTRAST GROUPS

Variable		Experimental Group			Contrast Group		
		$\bar{X}$	S.D.	Gain	$\bar{X}$	S.D.	Gain
Multiplication of classes	Pre	5.2	1.5		4.5	1.1	
	Post	6.1	1.4	+0.9	5.1	1.3	+0.6
Inclusion of classes	Pre	3.9	1.9		4.3	2.0	
	Post	4.8	1.9	+0.9	4.2	2.0	-0.1
Number Conservation	Pre	4.6	2.3		3.5	1.7	
	Post	5.1	2.2	+0.5	3.8	1.9	+0.3
Seriation	Pre	2.4	1.7		2.8	1.2	
	Post	3.6	1.7	+1.2	2.8	1.7	0.0
Length Conservation	Pre	6.1	1.1		5.8	1.0	
	Post	6.2	1.1	+0.1	6.3	1.0	+0.5
Measurement of Length	Pre	2.3	1.7		1.8	1.0	
	Post	3.1	2.1	+0.8	2.2	1.4	+0.4
Localization of Topographical Positions	Pre	5.0	1.2		*	*	
	Post	5.3	1.4	+0.3	*	*	-
Concepts of Left-Right	Pre	3.2	1.5		*	*	
	Post	3.5	1.5	+0.3	*	*	-
Coordination of Perspectives	Pre	2.4	1.4		*	*	
	Post	2.9	1.4	+0.5	*	*	-

\* The three representational space tasks were not included in the list of tests for the Contrast Group.

operational (3). For some tasks there are also substages, e.g., 3A, 3B. To quantify the data a new scale was used:

- stage 0 = 1 sensorimotor
- stage 1A = 2

stage 1B = 3

stage 2A = 4

stage 2B = 5
- preoperational
- stage 3A = 6

stage 3B = 7
- concrete operational

Zero was used when a subject could not perform on a specific task and it was assumed the child was still functioning in some areas at the sensorimotor level.

In multiplication of classes the contrast group made a gain of less than one substage (4.5 to 5.1) and the experimental group made a gain of one substage (5.2 to 6.1). As a group the experimental subjects initiated the stage of concrete operations but the contrast subjects did not.

In the inclusion of classes test, the gain for the experimental subjects was identical to the gain in multiplication of classes. The contrast group showed no change. However, the stages for both the contrast and experimental groups were considerably lower for the latter than for the



former task: Contrast group: 4.3 to 4.2, Experimental Group: 3.9 to 4.8; neither group became concrete operational. These results are in agreement with previous results found by Whyte (1969), i.e., that the concept involved in inclusion of classes seems to be I.Q. linked, with duller children becoming operational later in inclusion of classes than in other classification tasks and brighter children becoming operational in inclusion of classes earlier than in other classification tasks.

In number conservation gains were minimal. Both groups remained at the preoperational stage: the experimental subjects moved from stage 4.6 to 5.1, while the contrast subjects moved from stage 3.5 to 3.8.

There was no change in the mean stage in the seriation task for the contrast subjects but substantial change for the experimental group; however, neither group became concrete operational. The experimental subjects moved from stage 2.4 to 3.6 while the contrast subjects remained at stage 2.8. Both groups were considerably below the concrete operational stage.

There was little change in stage in conservation of length for either group but most subjects including the contrast group were operational at pretest. There were more upward changes in stage in measurement of length but stage of development was far from operational functioning: the contrast group increased from stage 1.8 to 2.2 while the experimental subjects increased from stage 2.4 to 3.1.

The representational space tasks were not administered to the contrast group since these tests were included in the "diagnostic test battery". The means for localization of topographical positions for the experimental subjects were stage 5.0 to stage 5.3, a gain of less than one substage. For concepts of left and right the means were stage 3.2 to 3.5, a gain of less than one substage. Similar results were found for the task coordination of perspectives: stage 2.4 to 2.9, a gain of less than one substage.

Within the total study, *A Study of the Efficacy of Prescriptive Teaching for Exceptional Children*, the experimental subjects were divided into three subgroups, two classes per group. With each subgroup a different administrative plan was used to determine the amount of assistance a special class teacher would require to implement a prescriptive teaching program. For group 1, both resource teachers and teacher aides were used; in group 2 only resource teachers were used and in group 3 only teacher aides were used. These subgroups were considered in the next analysis.

Analysis of covariance was carried out using pre-measures as the covariate. Where significant overall effects were detected, Scheffé tests on adjusted means were carried out using .05 significance level. Any values that exceed 9.45 [ $F(3,65)$ ] are significant at .05 level. Significant overall effects were found for multiplication of classes and seriation but when pairs of groups were compared for the former, the values were not significant; the values for the latter were significant for the contrast group and experimental group 1 (10.32).

When analysis of covariance was carried out on the diagnostic data for the three experimental groups and using pre-measures as the covariate, values exceeding 6.45 [ $F(2,49)$ ] were significant at the .05 level using Scheffé test on adjusted means. Significant values for pairs of groups were found for multiplication of classes (12.73 for Groups 1 vs 3, i.e., groups

where resource teacher and teacher aide vs teacher aide); for groups 1 vs 3 in concept of left-right (9.22); for groups 2 vs 3, i.e., resource teacher vs. teacher aide (8.95).

Because each experimental group comprised subjects ranging in C.A. from 5-9 to 14-3, the subjects from the three groups were considered as one treatment group but divided according to C.A. The three age groups were group I (C.A. less than 8-0), group II (C.A. 8-1 to 11-0), and group III (C.A. 11-1+). The C.A. and IQ characteristics are presented in Table 3. The gain scores considered by C.A. group are presented in Table 4.

Gains made by Group 2 appear greater than gains made by Groups 1 & 3 for multiple classification and inclusion of classes but the mean scores for multiplication of classes were 4.8 to 5.4, 5.2 to 6.4 and 6.1 to 6.8, and for inclusion of classes 3.2 to 3.7, 3.8 to 5.0 and 5.7 to 6.3. Group 3 subjects were closer to operational thinking at pretest but Group 2 did make substantial gains in the classification tasks, even though fewer of these subjects became operational. Similarly, Group 3 made only slight gains in conservation of number and conservation of length but pretest and posttest scores for the former were 6.6 to 7.0 and for the latter 7.0 to 7.0. Consequently, all subjects in Group 3 were concrete operational in these areas. Mean scores for Groups 1 & 2 in these tasks were 2.9 to 3.6 and 5.2 to 5.5 in conservation of number and 5.3 to 5.4 and 6.3 to 6.5 for conservation of length.

Very few subjects became operational in seriation (1.4 to 2.9, 2.5 to 3.7, and 3.9 to 5.0 for Groups 1, 2 & 3 respectively) and measurement of length (1.1 to 1.4, 2.4 to 3.5, and 4.3 to 5.7).

Laurendeau and Pinard (1970) cite the following as C.A. ranges for stage of development in the three representational space tasks:

- (1) Localization of topological positions—stage 2, C.A. range 4.0 to 7.2, stage 3A, C.A. range 7.2 to 9.6, and 3B, 9.6+.
- (2) Concept of left-right—stage 1, C.A. range 4.6 to 7.6, stage 2, 7.6 to 10.6, and stage 3, 11.6+.
- (3) Coordination of perspectives—stage 1, C.A. range 6.0 to 8.3, stage 2, 8.3 to 11.0, and stage 3, 12.0+.

In localization of topographical positions subjects in Group 1 (< 8.0) were functioning at stage 2A and made no gains; Group 2 subjects made

TABLE 3  
IQ CHARACTERISTICS OF THREE CHRONOLOGICAL AGE GROUPS

C.A. Groups	N	C.A.*			IQ**		
		Range	$\bar{X}$	S.D.	Range	$\bar{X}$	S.D.
< 8-0	19	74- 95	85.63	5.70	48- 91	74.21	14.0
8-0 to 11-0	25	97-131	114.6	11.29	52-107	74.52	13.69
11-1+	9	133-171	154.1	12.6	51- 85	74.20	7.42

\* Ages are presented as months.

\*\* WISC Full Scale IQ.



TABLE 4  
GAIN SCORES IN LOGICAL THINKING AND REPRESENTATIONAL SPACE  
DEVELOPMENT: THREE CHRONOLOGICAL AGE GROUPS

Variable	C.A. < 8-0		C.A. 8-0 to 11-0		C.A. 11-1+	
	N	Gain	N	Gain	N	Gain
Multiplication of Classes	19	+0.6	25	+1.2	9	+0.7
Inclusion of Classes	19	+0.5	25	+1.2	9	+0.6
Number Conservation	19	+0.7	25	+0.3	9	+0.4
Seriation	19	+1.5	25	+1.2	9	+1.1
Length Conservation	19	+0.1	25	+0.2	9	0.0
Measurement of Length	19	+0.3	25	+1.1	9	+1.4
Localization of Topographical Positions	19	-0.1	25	+0.5	9	+0.5
Concept of Left-Right	19	+0.2	25	+0.1	9	+0.8
Coordination of Perspectives	19	+0.5	25	+0.9	9	-0.1

slight gains (5.2 to 5.7 or stage 2B), and Group 3 subjects gained +0.5 substage (5.7 to 6.2 or stage 3A), that is, the subjects in this study were approximately one substage below the norms for their C.A. Somewhat greater discrepancy between C.A. and stage of development was found for the concept of left-right task: Group 1—2.5 to 2.7; Group 2—3.3 to 3.4, and Group 3—4.6 to 5.4. Only Group 3 made noticeable gain (+0.8). Results were even more discrepant for the coordination of perspectives task: Group 1—1.7 to 2.2, Group 2—2.3 to 3.2, and Group 3—2.9 to 3.8.

It would appear greatest gain for these subjects in task 1 occurs in the below 8 and 8 to 11+ range, and in task 2 in the 11+ range; in task 3 gains were made by the youngest and middle subjects with no gain occurring in the 11+ range.

Analysis of covariance was carried out by chronological age using pre-measures as the covariate. Where significant overall effects were detected, Scheffé tests on adjusted means were carried out using .05 significance level. Any values exceeding 6.46 [ $F(2,49)$ ] are significant at the .05 level.

Significant values for pairs of groups were found for measurement of length for Group 1 vs. Group 2 (9.75), and Group 1 vs. Group 3 (14.04); for localization of topographical positions for Group 1 vs. Group 2 (10.47) and Group 1 vs. Group 3 (9.01); for concept of left and right for Group 1 vs. Group 3 (17.40) and Group 2 vs. Group 3 (12.43).

### Conclusions

In general, the experimental subjects made gains in more areas and gains were of greater magnitude than gains by the contrast subjects. The experimental subjects made greater gains than the contrast subjects in multiplication of classes and inclusion of classes, seriation and measurement of length, however, in only one area, multiplication of classes, were

gains sufficient to move the subjects into the stage of concrete operational thinking. Gains in number conservation were minimal for both groups. The contrast group made no gains in inclusion of classes and seriation. The experimental subjects made only slight gains in the three representational space areas.

Gains made by the experimental subjects in logical thinking were equal for the two areas of classification ability sampled; however, as a group the subjects became concrete operational in multiplication of classes but not in inclusion of classes. At pretest the functioning level of these subjects was one stage apart in these two areas (1B vs 2B) and at posttest the spread remained the same (2A vs 3A). The reasons for this discrepancy in hierarchical development in exceptional children should be investigated since it seems to indicate a splintering of skills in logical thinking.

When gains in classification ability were considered by chronological age level, the middle group (C.A. 8-0 to 11-0) made the greatest amount of gain; however, for the oldest group the gain scores are misleading since many of these subjects had initiated the top stage at pretest. The mean posttest scores in multiplication of classes for the first two groups were higher than the mean pretest scores of the next oldest group, that is, the Group 1 posttest mean was 5.4 while the mean pretest score for Group 2 was 5.2, and the mean posttest score for Group 2 was 6.4 and the mean pretest score for Group 3 was 6.1. This phenomenon did not occur for any of the other tests. Several possibilities are suggested. Rate of development in multiplicative classification ability appears to be more amenable to displacement than rate of development for the other areas. There was very little overlap among the age groups in any of the other abilities; however, there were consistent gains indicating exceptional children do make normal, if slower, progress toward concrete operational thinking.

Ability to handle seriation notions and to apply conservation of length concepts showed substantial gains (more than one substage in five of the six C.A. comparisons) but subjects as a group did not become operational in either of these areas. Nevertheless, gains do indicate possible areas of potential development for these children.

In general, it can be stated that the prescriptive teaching program for these children was successful in increasing development in logico-mathematical skills. The pattern of hierarchical development and the nature of the interrelatedness of these abilities are areas which require investigation, as should the specific results of the various components of the program, e.g., how successful is language development in grammar and syntax in increasing stage of development.

The prescriptive teaching program was much less successful in increasing ability to handle concepts of representational space. While gains did occur, the magnitude of change was not great. By chronological age level, the greatest gains in concepts of left and right were made by the oldest children, while in coordination of perspectives the two older groups made equal gains (almost one substage in each instance). In spite of gains, stage of development remained well below C.A. expectations. There are several possible explanations. The prescriptive teaching program was based mainly on diagnostic information from perception and space tests which



seems to fit Piaget's notions of perceptual space rather than representational space. Remediation was geared to these particular areas of deficit. It may be that representational space is not as amenable to change from this type of remediation and what is required is a different type of teaching program.

There is a second hypothesis, that spatial deficits are reflecting some manner of neurological involvement. If this hypothesis is valid, spatial deficits may be less amenable to remediation regardless of the nature of the remediation program. The distinction between perceptual and representational space should be investigated as should differential teaching programs.

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## Perceptions of Educational Goals: A Survey

*This study was designed to determine opinions of students, teachers, parents and community leaders about: (1) the extent to which 18 commonly acceptable educational goals are now being achieved in schools, and (2) the extent to which the same 18 goals should be achieved.*

*The results indicate that respondents in all target populations agreed that the 18 goals should be achieved. There was, however, some variability among groups in terms of their perceptions of the extent to which the goals are and should be met. (Dr. Mosychuk is the Assistant Superintendent, Research & Evaluation; Dr. Blowers is Director of Research; Dr. Penner is Director of Evaluation; and Linda Weekley was a research assistant, all in the Department of Research and Evaluation, Edmonton Public School Board.)*

The importance of prescribed goals in facilitating the educational process has been recognized by many writers (e.g., Downey, 1960; Dumas & Beckner, 1968; Saylor & Alexander, 1966). According to Saylor and Alexander (1966), such goals are invaluable because they serve a number of different but vital functions. They suggest that educational goals serve to clarify the role of the school, guide educational decision making, determine the selection of units of school learning experience, set the parameters for the school experiences of pupils, and provide a basis for evaluating and improving the curriculum of the school.

Although there has been agreement concerning the value of educational goals, there has been a continuing controversy regarding the specific goals to be prescribed within particular educational systems. This controversy has been relatively sharp in recent years and is evident in most school systems in western society (Ebel, 1972; Toffler, 1970). To some writers, the lack of specifying appropriate educational goals is judged to be the root cause of current difficulties in education. For example, Ebel (1972) has contended that,



Public education in America today is in trouble. Though many conditions contribute to our present difficulties, the fundamental cause is our confusions concerning the central purpose of our activities. (p. 7)

One of the major causes of the controversy regarding the identification of education goals stems from the direct relationship which obtains between the needs and attitudes of a particular society and that society's educational goals (Brent & Kronenberg, 1970; Downey, 1960), a relationship which must be maintained if public education is to receive continued support from society. The implication of this relationship is that administrators must remain cognizant of, and responsive to, a society's changing needs and attitudes when educational goals are being set (Taba, 1962). However, in attempting to fulfill this task, controversy arises from the conflicting demands of the many interested but diverse groups, agencies and individuals who are more than willing to assume the task of establishing goals for education (Dumas & Beckner, 1968). Consequently, to facilitate the process of goal selection, administrators are required either to restrict the number of groups sampled (e.g., Aucoin, 1967) or to sample a broader segment of society (e.g., Robin, 1972) and face a larger task of selecting and compromising particular educational goals.

The present study represented an attempt to assess and compare the opinions of a number of societal groups concerning the educational goals which should be salient in elementary and secondary education. These groups were selected primarily on the basis of their great concern for the character of the education in elementary and secondary schools. Thus, the project was designed to assess the opinions of both teachers and parents associated with the project schools. In addition, however, the study was also designed to sample the views of two groups, community leaders and students, who have been largely overlooked in previous research but whose views on educational goals were deemed by the present researchers to be particularly valuable. In view of the influence community leaders exert on local affairs, the importance of assessing their opinions is readily apparent. However, the value of students' opinions regarding educational goals has been largely unrecognized. Yet, according to Saylor and Alexander (1966), it is the capacities, talents and potentialities of the students themselves that fix parameters for growth and development and the achievement of goals. It is clear that students' opinions constitute a dimension which cannot be overlooked in the establishment of appropriate and worthwhile educational goals.

Finally, compared with a number of other goal studies which have been conducted in Alberta (e.g., Aucoin, 1967; Downey, 1960; Department of Educational Administration, 1959; Robin, 1972), the present project focused on assessing the parents', students', teachers', and community leaders' views on educational goals as they specifically bear on urban elementary, junior high and senior high schools.

Thus, the present project was conducted in recognition of the continuing need for school systems to be aware of and responsive to, the desires and needs of the community, particularly as they are related to the educational process.

## Method

### Research Instrument

A set of 18 primary educational goals was selected from the educational goal literature. The selected goals were: Communication, Rationality, Preservation of the Environment, Lifelong Commitment to Education, Adaptability, Self-Actualization, Character Development, Cultural Appreciation, Effective Use of Leisure, Occupational Selection, Personal Health, Cultural Understanding, Vocational Preparation, Human Relationships, Citizenship, Family Responsibilities, Consumer Awareness, and Social Conscience.

The 18 goal statements were presented to the respondents in a questionnaire booklet. To ensure consistency in the interpretation of the goal statements, a list containing some specific "similar goal statements" was also provided. For example,

1. COMMUNICATION. Develop this student's ability to communicate ideas freely and effectively. Similar goal statements:
  - a) develop a background in oral and written English
  - b) develop skills in reading, writing and arithmetic
  - c) develop skills in speaking and listening.

In relation to each goal statement, respondents were required to answer two questions. Each response was given on a 4-point scale ranging from "strongly agree" to "strongly disagree". First, they were asked to indicate the extent to which the school *SHOULD BE* attempting to achieve each particular goal. Secondly, respondents were asked to indicate the extent to which they felt the school *IS NOW* attempting to achieve each goal. The intent of the second question was to examine the differences in perceptions between what goals they felt the school *should be* achieving and what they *now are* achieving.

### Sample Selection

An elementary, junior high, and a senior high school were selected from among the Edmonton Public School Board schools for this study. The elementary school was the "feeder" school for the junior high and the junior high school was the "feeder" school for the high school. The attendance areas for the sample schools were considered to be generally representative of the Edmonton community.

Within each of these schools, students were randomly selected for administration of the questionnaire. However, since it was not deemed feasible to involve students below the Grade 5 level, the elementary school sample was selected from the student enrolment in Grades 5 and 6. The teacher sample included all certified staff in the three schools; this involved teachers, administrators, librarians, and counselors. The parent samples were randomly selected from among those parents whose children attended the selected elementary, junior high and senior high schools.

Finally, the community leader sample was drawn from the City of Edmonton at large and included the leaders of community, service, business and professional organizations, senior members of municipal and provincial governments, and representatives of the media.

Questionnaires were distributed to each of the selected groups. Table 1



TABLE 1  
NUMBER OF QUESTIONNAIRES ADMINISTERED AND RETURNED

Sample Groups	Number Administered	Number Returned	Percentage Returned
Elementary Students	113	102	90.3
Junior High Students	110	107	97.3
Senior High Students	376	236	62.9
Elementary Teachers	13	12	92.3
Junior High Teachers	25	24	96.0
Senior High Teachers	104	82	78.8
Elementary Parents	100	30	30.0
Junior High Parents	100	31	31.0
Senior High Parents	500	134	26.8
Community Leaders	254	106	41.7
TOTAL	1695	864	51.0

contains a summary of the number of questionnaires distributed and returned.

### Data Analysis

Within each of the 10 sample groups, responses of “strongly agree” and “agree” were combined. The percentage of agreement by each group with each goal statement on the SHOULD BE and IS NOW questions was then computed. The difference in percentage responses on the SHOULD BE and IS NOW questions on each of the 18 goals for each group was calculated.

### Results

Table 2 records, for the 18 goals, the combined agreement percentage of each group who consider that the school SHOULD BE attempting to achieve each particular educational goal. As indicated in this table, a majority in each group considers that the school should attempt to achieve all of the 18 goals; the lowest percentage agreement on any one goal is shown by elementary teachers on the goal of “Family Responsibilities” (i.e., 58.3%). Table 2 also reveals however, that the patterns of agreement across the 18 goals varies among groups. This is illustrated by the wide range of ranks among the different groups for some of the particular goals.

The respondents were asked to indicate their perception of the extent to which the school IS NOW attempting to achieve each goal. The percentage of respondents within each group who agreed that the school is attempting to achieve each particular goal is recorded in Table 3. Compared with the SHOULD BE data (Table 2), this table indicates that *a majority in every group* considers that, according to their perceptions, the schools *are not* attempting to achieve at least two of the goals. In fact, *a majority of the*

TABLE 2  
PERCENTAGE AGREEMENT ON EACH GOAL BY 10 GROUPS ON  
SHOULD BE QUESTION

Goals	Students						Teachers						Parents						C.L.	
	Elem.		Junior		Senior		Elem.		Junior		Senior		Elem.		Junior		Senior			
	%	*R	%	*R	%	*R	%	*R	%	*R	%	*R	%	*R	%	*R	%	*R	%	*R
Communication	95.1	1	82.2	1	83.4	1	100	1	87.5	1	85.4	2	63.4	4	87.1	1	68.6	2	65.1	3
Rationality	69.7	8	71.1	2	74.5	2	91.7	2	83.4	2	87.9	1	80.0	1	67.7	5	73.9	1	67.0	1
Environment Preservation	50.0	16	33.7	17	39.0	12	83.3	8	66.6	4	78.1	3	50.0	11	54.9	8	59.0	4	67.0	1
Commitment To Education	54.9	12	36.4	16	33.5	15	75.0	10	50.0	14	32.9	17	33.3	15	32.3	15	25.4	17	37.8	13
Adaptability	51.0	15	53.3	6	44.1	8	66.7	12	66.6	4	58.5	10	50.0	11	54.9	8	41.8	11	37.8	13
Self Actualization	80.4	3	44.0	12	42.8	10	91.7	2	54.1	11	63.5	6	66.7	2	70.0	4	33.6	14	44.3	10
Character Development	52.0	13	44.9	10	47.4	5	75.0	10	62.5	8	52.4	12	60.0	5	54.9	8	36.6	13	37.8	13
Cultural Appreciation	51.9	14	44.9	10	46.2	7	83.3	8	66.6	4	57.4	11	60.0	5	74.2	2	57.5	5	61.4	4
Use of Leisure	56.9	11	40.1	15	31.7	16	33.3	17	50.0	14	43.9	16	56.6	8	29.0	17	32.1	16	48.1	8
Occupational Selection	59.8	10	59.8	3	56.4	4	33.3	17	62.5	8	63.4	7	33.3	15	38.7	14	45.5	10	37.7	16
Personal Health	83.4	2	54.2	5	37.8	14	91.7	2	58.3	10	50.0	13	66.7	2	58.1	7	57.5	7	52.8	7
Cultural Understanding	70.5	7	56.1	4	41.5	11	91.7	2	66.6	4	61.0	9	56.6	8	64.6	6	62.7	3	60.4	5
Vocational Preparation	71.5	6	48.6	8	70.0	3	66.7	12	54.1	11	74.3	4	36.7	14	47.4	13	56.0	6	43.4	11
Human Relations	79.4	4	50.4	7	46.7	6	91.7	2	54.1	11	67.1	5	53.4	10	71.0	3	50.8	8	59.4	6
Citizenship	74.5	5	48.6	8	44.1	8	91.6	7	75.0	3	62.2	8	60.0	5	54.9	8	46.3	9	48.1	8
Family Responsibilities	33.3	18	31.7	18	12.7	18	41.6	16	20.9	18	28.1	18	30.0	17	32.3	15	33.6	14	31.1	17
Consumer Awareness	48.0	17	41.1	14	31.7	16	50.0	15	33.3	17	48.8	14	26.7	18	22.6	18	25.4	17	19.8	18
Social Conscience	61.8	9	44.0	13	38.6	13	66.7	12	37.5	16	46.3	15	40.0	13	48.4	12	40.3	12	42.5	12

\* Rank based on percentage

junior and senior students, senior parents and the community leaders consider that the schools are not attempting to achieve more than nine of the 18 goals. The table reveals considerable consistency among groups in terms of the agreement to which goals are perceived as being met. This is illustrated by the close similarity of ranks among groups for most of the individual goals. The greatest majority responses in all 10 groups occurs in relation to the Communication and Rationality goals while the smallest minority percentage occurs in nine of the 10 groups in relation to the Family Responsibilities and Consumer Awareness goals.

Finally, Table 4 records the differences in percentage responses between the SHOULD BE and IS NOW questions on each of the 18 goals. These data give some indication of the different groups' perceptions of the goals which should be given greater emphasis in school education. As evidenced



TABLE 3  
PERCENTAGE AGREEMENT ON EACH GOAL BY 10 GROUPS ON  
IS NOW QUESTION

Goals	Students						Teachers						Parents						C.L.	
	Elem.		Junior		Senior		Elem.		Junior		Senior		Elem.		Junior		Senior			
	%	*R	%	*R	%	*R	%	*R	%	*R	%	*R	%	*R	%	*R	%	*R	%	*R
Communication	97.1	1	91.6	1	93.7	5	100	1	100	1	92.7	3	86.7	7	71.0	18	87.3	7	90.6	6
Rationality	86.3	8	87.9	3	94.5	5	91.7	8	95.8	4	91.5	6	80.0	15	80.6	6	86.6	9	90.6	6
Environment Preservation	88.2	7	85.0	8	94.1	4	100	1	91.7	8	91.5	6	93.3	1	77.5	8	88.8	5	88.6	11
Commitment to Education	77.5	12	66.3	18	80.1	18	100	1	95.8	4	95.1	1	90.0	2	80.7	4	91.0	2	95.3	2
Adaptability	74.5	15	85.0	8	92.3	7	91.7	8	91.7	8	91.5	6	86.7	7	77.4	9	91.0	2	90.6	6
Self Actualization	91.2	3	86.9	5	92.3	7	100	1	95.8	4	92.7	3	90.0	2	87.1	2	93.2	1	89.6	10
Character Development	74.5	15	78.5	14	83.5	14	91.7	8	91.7	8	84.1	14	90.0	2	77.4	9	86.5	11	84.0	6
Cultural Appreciation	69.6	17	77.5	15	81.7	16	91.7	8	95.8	4	92.7	3	70.0	17	77.4	9	78.3	16	56.8	14
Use of Leisure	80.4	11	82.2	11	81.7	16	83.4	13	87.5	13	89.1	10	66.6	18	77.4	9	82.8	14	85.9	15
Occupational Selection	85.3	10	90.6	2	95.3	2	91.7	8	83.3	14	82.9	15	90.0	2	90.3	1	89.6	4	92.5	4
Personal Health	91.1	4	79.4	13	86.0	12	100	1	91.7	8	79.2	16	83.4	9	77.4	9	86.6	9	92.5	4
Cultural Understanding	90.2	5	86.9	5	92.3	7	100	1	91.7	8	95.1	1	90.0	2	74.2	15	87.4	6	90.5	9
Vocational Preparation	86.3	8	85.0	8	93.7	5	75.0	15	70.9	17	74.3	17	83.4	9	80.6	6	77.6	18	83.0	18
Human Relations	94.1	2	85.9	7	97.0	1	100	1	100	1	89.0	11	83.4	9	80.6	4	85.0	13	93.4	3
Citizenship	89.2	6	76.6	16	87.3	11	83.3	13	100	1	89.0	11	83.4	9	87.1	2	78.1	17	96.2	1
Family Responsibilities	69.6	17	82.2	11	83.0	15	58.3	18	83.3	14	61.0	18	76.7	16	77.4	9	78.4	15	84.0	6
Consumer Awareness	77.5	12	87.9	3	89.8	10	75.0	15	70.9	17	86.6	13	83.4	9	74.2	15	85.8	12	87.8	13
Social Conscience	75.5	14	74.4	17	86.0	12	75.0	15	83.3	14	90.2	9	83.4	9	74.2	15	87.3	7	88.6	11

\* Rank based on percentage

in this table, there are some goals which most groups agree should be the subject of more efforts by the school (e.g., Commitment to Education, Occupational Selection, Family Responsibilities) whereas there are others which are perceived as being given nearly satisfactory emphasis by the school (e.g., Communication, Rationality).

### Discussion

The results obtained indicate that a majority of the students, teachers, parents and community leaders whose opinions were sampled in the study considered that elementary, junior high and senior high school education should be directed toward achieving all of the 18 educational goals which were the focus of the study. A number of goals which elicited particularly

TABLE 4  
DIFFERENCE PERCENTAGES BETWEEN *SHOULD BE* AND *IS NOW*  
RESPONSES BY 10 GROUPS

Goals	Students			Teachers			Parents			C.L.
	Elem.	Junior	Senior	Elem.	Junior	Senior	Elem.	Junior	Senior	
Communication	2.0	9.4	9.8	0.0	12.5	7.3	23.3	-16.1	18.7	25.5
Rationality	16.6	16.9	20.0	0.0	12.4	3.6	0.0	12.9	12.7	23.6
Environment Preservation	28.2	51.3	55.0	16.7	25.0	13.4	43.3	22.6	29.8	21.6
Commitment to Education	22.6	29.9	46.6	25.0	45.8	62.2	56.7	48.4	65.6	57.5
Adaptability	23.5	31.7	48.2	25.0	25.0	33.0	36.7	22.5	39.2	52.8
Self Actualization	10.8	42.9	49.5	8.3	41.7	29.3	23.3	17.1	59.6	45.3
Character Development	22.5	33.6	36.1	16.7	29.2	31.7	30.0	22.5	49.9	46.2
Cultural Appreciation	17.7	32.6	35.5	8.4	29.2	35.3	10.0	3.2	20.8	25.4
Use of Leisure	33.5	42.1	50.0	50.1	37.5	45.1	10.0	48.4	50.7	37.8
Occupational Selection	25.5	30.8	38.9	58.4	20.5	19.5	56.7	51.6	44.1	54.8
Personal Health	7.7	25.2	48.2	8.3	33.4	29.2	16.7	19.3	35.1	39.7
Cultural Understanding	19.7	30.8	50.8	8.3	25.1	34.1	33.4	9.6	24.7	30.1
Vocational Preparation	14.8	36.4	23.7	8.3	16.8	0.0	46.7	33.2	21.6	39.6
Human Relations	14.7	35.5	50.3	8.3	45.8	21.9	30.0	9.6	34.2	34.0
Citizenship	14.7	28.0	37.2	-8.3	25.0	26.8	23.3	32.3	31.8	48.1
Family Responsibilities	36.3	50.5	70.3	16.7	62.4	32.9	46.7	45.1	44.8	52.9
Consumer Awareness	29.5	46.8	58.1	25.0	37.6	37.8	56.7	51.6	60.4	68.0
Social Conscience	13.7	30.4	47.4	8.3	45.8	43.9	43.4	25.8	47.0	46.1

NOTE: Scores are calculated as: SHOULD BE minus IS NOW

strong agreement from most of the groups can be identified. These include the goals of Communication, Lifelong Commitment to Education, Self-Actualization, Occupational Selection, Human Relations and Citizenship.

The results also revealed, however, that there was some variability among groups in terms of their agreement on the extent to which each of the educational goals were being attempted in the schools. Although there was some similarity in responses among the three student groups and the three teacher groups respectively, there was little overlap among the parent groups. In addition, there was little similarity between the response patterns of students and their teachers and parents, and the parents and community leaders, although the responses of the latter tended to overlap those of the teachers. The educational goals which appeared to contribute most to the variability between groups include those of Adaptability, Cultural Appreciation, and Personal Health.



Assuming that the student, teacher, parent and community leader groups are those most closely and vitally concerned with the nature of school education, the variability among the groups has an important implication for administrators involved in setting educational goals. Specifically, if educational goals are in any way to reflect the disparate desires and needs of these concerned groups, administrators must devote considerable attention to selecting and rationalizing the goals which are given salience in school education.

Finally, analysis of the difference percentages between each of the groups' SHOULD BE and IS NOW responses suggests again that there is both agreement and disagreement among the groups in terms of the goals that the groups perceive should be given greater salience than they have at present in the schools. There is fairly consistent and strong agreement that the schools should be devoting more attention toward facilitating such goals as Lifelong Commitment to Education, Adaptability, Occupational Selection and Consumer Awareness. At the same time, however, there is less agreement among the groups concerning the need for the schools to focus on such goals as Self-Actualization, Cultural Appreciation and Cultural Understanding. Obviously, such results as these emphasize the need for continued goal study research in order that education can most effectively enhance and satisfy the interests, needs and desires of society.

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## The Objectives for Teaching Mathematics in the Junior High School as Perceived by Parents, Students, Teachers and Professional Educators

*A list of fifteen objectives for teaching junior high school mathematics was obtained from the related literature. These objectives were ranked according to perceived importance by selected groups of teachers, parents, students and professional educators.*

*By summing the ranks of each objective, consensus rankings for each group were derived. Calculated values of Kendall's Coefficient of Concordance  $W$  for each group indicated that consensus rankings were interpretable. The groups were compared pairwise on the rankings of specific objectives. Each of the six possible pairs taken from the four groups showed significant differences on at least two objectives. Finally, the contingency coefficient  $C$  was computed to determine the degree of association between the groups and their rankings of each objectives. There was a significant level of association on six of the fifteen objectives.*

*In summary, parents and students were quite similar in their rankings. As a group, professional educators were appreciably different in their ranking while junior high school teachers, as a group, were somewhere in between, but probably closer to the students and parents than to the educators. (Dr. Olson is Associate Professor in the Department of Secondary Education at the University of Alberta; Ella Freeman is a junior high school mathematics teacher with the Ponoka, Alberta, School Board.)*

Judgments concerning the worth of objectives for schools have not frequently been systematically solicited from the public that schools serve. Objectives have generally been formulated by people in the schools on the basis of opinion or intuition. A good case can be made for the argument that a public will not and should not accept this any longer. Downey (1960,



p. 4) has stated, "The most important contemporary determiner of the task of education is the opinion of the public that the educational enterprise serves. The most confusion exists at this level."

The purpose of this study was to determine which objectives for junior high school mathematics were considered most important by: a group of professors of education together with some secondary school mathematics supervisors; a sample of junior high school mathematics teachers selected from rural schools; a random sample of grade nine students in the same rural schools; and a random sample of parents of those students.<sup>1</sup> Prior to the initiation of the project, it was believed that the junior high school mathematics program was being pulled in many different directions by the various groups involved with junior high schools. This study was conducted to determine whether that belief was true or not.

The objectives were not stated at the instructional level. They were written in broader language, calling for value judgments from the respondents. The objectives used were obtained from an exhaustive search of the related literature. The authors believed that every conceivable objective was represented in the final selection.

### *Overview*

Teachers, parents, students, and professors of education with mathematics supervisors ranked fifteen objectives from one to fifteen in order of their perceived importance. To aid respondents' understanding of the objectives, each objective was explained further with an example. The resulting rankings were analyzed to determine within and between-group differences.

### *Procedure*

#### *Setting*

This study was conducted in three rural counties of Alberta. The socioeconomic level would be uniform throughout this area—neither high nor low.

#### *The Objectives*

The following fifteen objectives for junior high school mathematics were obtained from an exhaustive search of the literature. The respondents were instructed to order the objectives from one to fifteen in order of importance.

1. To be able to add, subtract, multiply, divide and to solve equations correctly in arithmetic and algebra.
2. To develop an understanding of the mathematical concepts from arithmetic, algebra and geometry, e.g., area, volume, perimeter, congruence, similarity, etc.
3. To acquire the process skills required in obtaining mathematical knowledge, e.g., methods of reading, finding information, the way of thinking, and using the knowledge.
4. To develop systematic methods of analyzing problems and presenting their solutions.
5. To develop a student's confidence in his analytic powers and problem solving abilities.

6. To develop mathematical skills used in daily living, i.e., be able to use mathematics in business and personal finance, e.g., insurance, taxes, discount, etc.
7. To develop an understanding of the significance of mathematics in science and technology.
8. To understand the interaction between mathematics and the physical world, e.g., how man controls his environment.
9. To develop an understanding of the structure of mathematics. This is understanding how mathematical knowledge is related, e.g., all number systems have certain common structural properties, e.g., the commutative property:  $4 \times 3 = 3 \times 4$ .
10. To develop an appreciation of mathematics in the world around us: beauty in art; nature; architecture; in form; balance; regularity of patterns; symmetry; etc.
11. To be able to apply mathematical reasoning to social and personal problems and to reach conclusions based on facts.
12. To understand that mathematics is a human activity (invented by man) and its history is marked by inventions, discoveries, guesses and mistakes.
13. To develop inventiveness (creativity). Students should be given problems for which they must "invent" a method of solving, e.g., find the diameter of the earth.
14. To understand that mathematical words have exact meanings and to realize how mathematical symbolism makes problem solving easier.
15. To foster enjoyment of mathematics.

#### *Teacher Data*

The objectives questionnaires were distributed to 39 junior high school teachers of mathematics in the three rural counties. This represented the entire population of such teachers. Of the 39 questionnaires distributed, 34 (87.18%) were returned.

#### *Student Data*

Questionnaires were distributed to a random selection of ten grade nine students from each of the grade nine classes in the three counties. In all, 420 questionnaires were distributed. Of these, 338 (80.50%) were returned. For computational ease, random samples, stratified by sex, were selected from the 338 returned questionnaires.

#### *Parent Data*

Questionnaires were distributed to a random selection of parents of ten grade nine students from each class in the three counties. This made a total of 420 questionnaires distributed to parents. Of these, 242 (57.62%) were returned. For computational ease, a random sample was selected from the 242 questionnaires that were returned.

#### *Educator Data*

Nine questionnaires were distributed to mathematics educators at the University of Alberta, the University of Calgary, and the University of Lethbridge, together with secondary school mathematics supervisors in Edmonton and Calgary. The nine questionnaires distributed represented the



entire population of these educators. Of the nine questionnaires sent out, eight (88.89%) were returned.

## Results

For each of the aforementioned groups, consensus rankings were obtained by summing the ranks of each objective. The smallest sum of the ranks indicated the most important objective, and the next smallest sum indicated the second most important objective, and so on. The consensus rankings are shown in Table 1.

TABLE 1  
CONSENSUS RANKINGS BY GROUPS

Objective	Teachers' Ranking	Students' Ranking	Parents' Ranking	Educators' Ranking
1. Fundamental processes	4	2	2	7
2. Mathematical concepts	2	4	4	2
3. Process skills	1	3	3	1
4. Problem solving	3	5	5	3.5
5. Confidence in ability	6.5	5	5	5
6. Mathematics in daily life	5	1	1	13
7. Mathematics in science and technology	10	8	10	15
8. Mathematics and the physical world	11	11	12	11
9. Structure	8	7	8	6
10. Appreciation	14	10	9	8
11. Critical thinking	6.5	9	7	14
12. Mathematics a human activity	15	14.5	15	12
13. Creativity	13	12	14	9
14. Precise language and symbolism	12	13	11	10
15. Enjoyment	9	14.5	13	3.5

N for educators = 8  
N for teachers = 36

N for parents = 242  
N for students = 338

The calculation of consensus rankings could mask large differences in the rankings within each group. Because of this possibility, the Kendall Coefficient of Concordance  $W$  was calculated for each group. For each group the probability of the obtained agreement by chance was less than .05. In other words calculation of consensus rankings was a viable technique and such rankings were representative of the group as a whole.

Secondly, pairwise comparisons of the groups were made on the rankings of specific objectives. The Mann-Whitney  $U$  test was used to determine significant differences on specific objectives. Each of the six possible pairs taken from the four groups showed significant differences on

at least two objectives. The results of this analysis are summarized in Figure 1.

FIGURE 1  
PAIRWISE COMPARISON OF GROUPS ON SPECIFIC OBJECTIVES  
USING MANN-WHITNEY *U* TEST

- (a) Educators and Junior High School Teachers
  - Objective 6. To develop the mathematical skills used in daily living (educators 13, teachers 5, significance level 0.02).
  - Objective 10. To develop appreciation of mathematics in the world around us. (educators 8, teachers 14, significance level 0.03).
- (b) Junior high school teachers and parents
  - Objective 1. To develop skills in the fundamental processes of algebra and arithmetic (teachers 4, parents 2, significance level 0.01).
  - Objective 6. To develop the mathematical skills used in daily living (teachers 5, parents 1, significance level 0.03).
  - Objective 15. To foster enjoyment of mathematics (teachers 9, parents 13, significance level 0.004).
- (c) Parents and students
  - Objective 3. To acquire the process skills used in mathematics (parents 4, students 4, significance level 0.03).\*
  - Objective 13. To develop inventiveness (creativity) (parents 14, students 12, significance level 0.04).
- (d) Parents and educators
  - Objective 1. To develop fundamental processes of arithmetic and algebra (parents 2, educators 7, significance level 0.02).
  - Objective 6. To develop the mathematical skills used in daily life (parents 1, educators 13, significance level 0.001).
  - Objective 7. To develop an understanding of mathematics in science and technology (parents 10, educators 15, significance level 0.04).
  - Objective 15. To foster enjoyment of mathematics (parents 13, educators 3.5, significance level 0.008).
- (e) Educators and students
  - Objective 1. To develop skills in fundamental processes (educators 7, students 2, significance difference 0.02).
  - Objective 6. To develop the mathematical skills used in daily living (educators 13, students 1, significance level 0.001).
  - Objective 7. To develop an understanding of mathematics in science and technology (educators 15, students 8, level of significance 0.04).
  - Objective 15. To foster enjoyment of mathematics (educators 3.5, students 13, significance level 0.008).
- (f) Teachers and students
  - Objective 2. To develop an understanding of mathematical concepts (teachers 2, students 4, significance level 0.02).
  - Objective 3. To acquire the process skills of mathematics (teachers 1, students 3, significance level 0.0001).
  - Objective 4. To develop systematic methods of analysing problems and presenting their solutions (teachers 3, students 5, significance level 0.01).
  - Objective 7. To develop an understanding of mathematics in science and technology (teachers 10, students 8, significance level 0.04).

\*The Mann-Whitney Test is sensitive to differences in distributions which includes more than simply the mean. This would explain the difference on Objective 3 for parents and students, for instance.

Thirdly, the Contingency Coefficient *C* was computed to determine the degree of association between the groups and the rankings. The chi-square which is computed in the course of computing the value of *C* provides



an adequate indication of the significance of  $C$  (Siegel, 1956, p. 199). The results are summarized in Table 2.

TABLE 2  
CONTINGENCY COEFFICIENTS FOR EDUCATORS, TEACHERS,  
STUDENTS, AND PARENTS

Objectives	$\chi^2$	$C$	Level of Significance
1	12.07	.14	0.01
2	7.02	.11	0.08
3	6.61	.10	0.07
4	8.00	.11	0.05
5	16.70	.16	0.001
6	24.41	.23	0.001
7	5.29	.09	0.15
8	3.56	.07	0.30
9	1.61	.05	0.60
10	4.90	.09	0.20
11	3.75	.07	0.30
12	8.60	.11	0.03
13	.78	.001	0.85
14	2.50	.004	0.45
15	9.93	.13	0.02

$N$ for educators = 8	$N$ for students = 338	
$N$ for teachers = 34	$N$ for parents = 242	$df = 3$

As can be observed in the above table, there is a significant level of association ( $p \leq .05$ ) on six of the fifteen objectives.

Implications

The perceptions of the objectives by the groups of students, parents, and teachers were very similar. Teachers, parents, and students chose the same six objectives as most important. In fact, parents and students ranked them in exactly the same order.

The sample size for the group of educators was admittedly small. However the results that were obtained seemed to indicate a lack of agreement between the group of educators and the other groups.

Parents and students indicated that the most important content of the mathematics course should comprise fundamental skills used in daily life. Educators and teachers indicated that those process skills of mathematics which enable a student to work on his own were most important.

Structural properties, an important feature of “new math,” were not considered to be as important as “practical” skills by teachers, parents, and students. On the other hand, the group of educators had these objectives ranked in the opposite order.

In summary, students and parents seemed quite similar in their perceptions of the objectives. Professional educators were appreciably different in their views. Junior high school teachers were somewhere in between but probably closer to the students and parents than to the educators.

In retrospect, the procedure used in this study seems potentially useful. With regard to the objectives it seems that substantive evidence has been introduced in an area where opinion, bias, intuitive notions, etc., has generally ruled the day.

<sup>1</sup> The work herein described was completed by Ella Freeman as partial fulfillment of the requirements for a Master of Education degree from the University of Alberta, Edmonton, Canada.

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## Transitional Analysis of Adult Learners' Needs

*Reacting against indiscriminant adherence to the conventional 'needs approach' in adult education, the present paper proposes and tests a model which first of all locates factors governing perceived transition of learners' needs and secondly charts various possible effects of the teaching-learning process upon individual learners in degree of perceived change. Based on the data of 71 adult learners attending various courses in several professional programs, the study found that among the factors that had bearing upon perceived change, lecture and satisfaction with courses and instructors were the most important single factors. General satisfaction as well as formal interpersonal process were significant dimensions in bringing about changes. The four groups of learners identified in terms of initial needs and degrees of transformation varied to some extent in their receptivity to formal interpersonal process and performance but did not exhibit differences in other dimensions. (Dr. Lam is Assistant Professor of Education at Brandon University.)*

Developed and nurtured by the "child-centred" school, the "needs approach" has become a prevailing strategy for curriculum planning in education in general, and adult education in particular. Most adult educators today echo the importance of tailoring curriculum content and materials to the needs of adult learners. There is, indeed, much research evidence to support this assertion. McLoughlin (1971) reported significant differences in attitude scores in favour of groups that shared in the decision on course content and design. Londoner's study (1972) showed that students' goals and expectations needed to be met to reduce dropout rates. Zahn (1969) stressed that "impairment" of learning ability or distortion of pertinent information occurs when knowledge conflicts with strong present needs.

While the validity of this approach is probably beyond question, more voices are being raised against gross generalization and indiscriminant employment of the doctrine of interests and needs in adult education. Griffin (1973), for instance, by raising three tricky issues underlying need assessment techniques, called for a more careful scrutiny of educators' professional actions and of the ideological instances basic to them.

Williams (1971) urged adult educators to be aware of the intricate relationships between individual learners' needs and factors of the complex society.

Concerns for sweeping compliance to the predominant mode of thought probably originate from the fear that the pendulum might swing to another extreme such that educators may eventually abdicate the role of program planning to learners. Ambiguity and misuse of the "needs approach" as witnessed in some cases necessitate a more in-depth analysis of the concept of need, a topic well discussed by Atwood and Ellis (1971). In their paper, a careful distinction was made among the prescriptive, motivational and specialized uses of the term. Of great practical implication to adult learners in program development and delivery are recognition of basic differences between two subcategories of needs, i.e., real educational needs and felt symptomatic needs. Identical in some cases, they serve mostly different purposes. Appropriateness of selection and employment of either of these in program organization are contingent upon the nature and types of courses involved. To be more specific, in developing programs that prepare adult learners for professional careers, needs which prescribe a desirable state of affairs in terms of adequate knowledge, attitudes or skills, needs which identify deficiency of individuals in relation to the societal demands and go beyond affective symptoms of learners must be carefully consulted. On the other hand, design of recreational, life-enrichment, non-profession oriented courses should fall heavily on reference to the felt, symptomatic needs expressed by the mature participants. Inaccurate assessment and selection will spell disaster to the program developed.

A second conventional fallacy associated with the "needs approach" entrenches a stagnant viewpoint of learners' needs. Operating on the assumption of the importance of and permanence of initial needs, many practitioners are inclined to believe that such needs should become the cornerstone upon which the entire course or program structure is constructed. Increasing evidence is documented to show that learners' needs are far from being fixed. In assessing the impact of content and structural factors upon attendance regularity of adult learners, Lam and Wong (1974) detected and raised the question of possibility of need transformation on the part of the learners. Atwood and Ellis (1971) also stressed that "diagnosing needs is a continuous concern, not a one-shot effort."

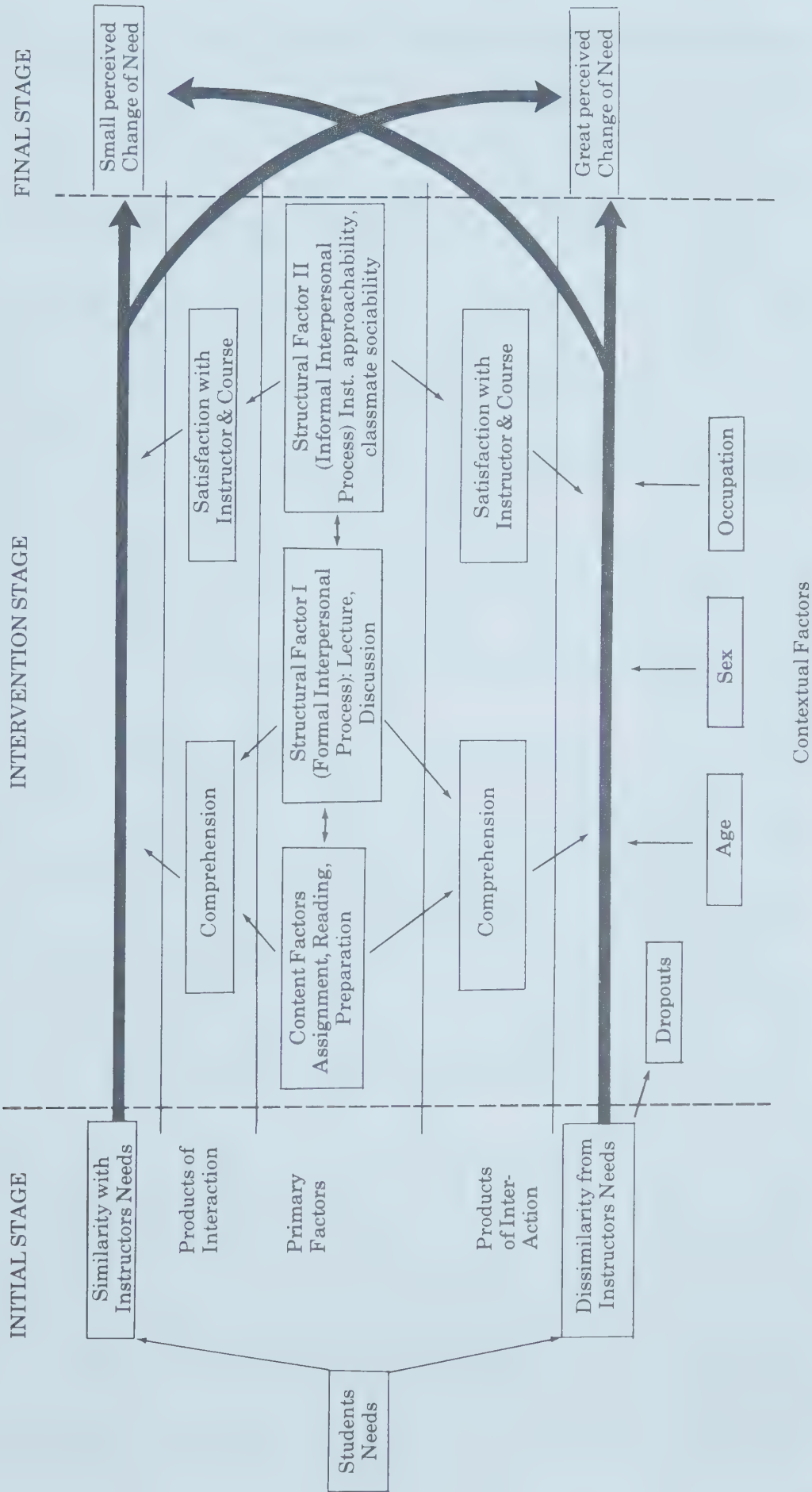
A third inherent weakness related to the use of initial needs of adults in program planning arises from the observation that adults are not precise in stating their expectations and needs (Burgess, 1971). To anchor program planning on imprecise and ambiguous statements of needs runs the danger of misinterpretation, misjudgment and miscalculation.

### *Theoretical Framework*

By pinpointing some inherent difficulties related to the "needs approach" in general, the present paper specifically attempts to propose and examine a theoretical model dissecting the nature and charting the changes of one type of needs, i.e., real educational needs of adult learners enrolled in professional courses over a span of time. This model is diagrammatically expressed in Figure 1.



FIGURE 1  
A DYNAMIC MODEL OF ADULT LEARNERS' NEEDS



Needs are described by Atwood and Ellis (1971) as follows:

- (a) they must be required or necessary for a desired state of affairs;
- (b) they must be lacking, absent or deficient;
- (c) they must carry a legitimate claim about which something ought to be done;
- (d) they must be capable of being satisfied by means of a learning experience which can provide appropriate knowledge, attitudes, or skills.

Based on these characteristics of real educational needs, it is hypothesized here that not *all* adult learners at the time of taking professional courses are aware of their "real educational needs." Many may in fact hold what are, by nature, felt symptomatic needs. On the other hand, the instructors of these courses, having had themselves a full earlier exposure of knowledge, attitudes, or skills that constitute the ingredients of the professional preparation and having had wider contact with the field and closer approximation of societal demands, do come to the planning stage of programs with precise conceptions that aspire to fulfil real educational needs. From the viewpoint of instructors' needs and expectations, there are two categories of adult learners at the beginning of course work, i.e., one that shares a similar set of needs and expectations of the courses with the instructors and another, the greater majority, which entertains a vastly different set of needs and expectations compared with those of the instructors.

At the termination of courses, four possible groups of adult learners, characterized in terms of their initial needs and perceived change, will emerge. The first group are those who share a similar set of needs and expectations with the instructors and perceive no changes in the needs and expectations at the end of the courses. Apparently, the teaching-learning process which this group has gone through merely consolidates what they initially expected to get from the course.

The second group are those who at the outset share a similar set of needs and expectations with the instructor but who report great changes of their initial needs and expectations at this terminal stage. This is possibly due to the fact that exposure to the teaching-learning process assists them in redefining real educational needs which they first vaguely conceived so that the reported changes actually pertain to variation of needs in degree, rather than in scope.

The third group are those who entertain a set of needs and expectations quite dissimilar from those of the instructors but report little perceived changes of these needs and expectations at the end of the courses. Such a group represents those who are least affected by the teaching-learning process. Some of them will have dropped out from the course at the beginning stage. The perseverance of those who remain hinges on factors external to the course or program. They might seek future global and tangible goals which may, but often may not, be related to the specific courses taken at this stage of their career.

The fourth group are those who entertain needs and expectations quite dissimilar from those of the instructors but report great changes and



modification of their needs at the end of the course. Evidently, this is a group who start with vague or perhaps unrealistic needs as they are unaware of appropriate knowledge, attitudes and skills that entail such a program or course of professional preparation. Having the exposure of a period of classroom interactions, they begin to develop a more accurate set of educational needs and expectations markedly different from earlier ones.

In tracing mechanisms that are conducive to the conceived degree of need and expectation changes and transformation of adult learners, the model further postulates two factors, comprehension and satisfaction, as primarily responsible. It is also expected that the affective conditions of learners will have strong bearing on the degree of perceived changes expressed by learners. While leading to the same type of overt behavior (expression of need and expectation changes), understanding is basically different from satisfaction in that the former reflects the intellectual growth of learners resultant from the learning experience, while the latter registers learners' affective responses to the learning experiences, which could be quite independent of the former factor.

Important as comprehension and satisfaction are to perceived changes of needs, they are conceived as secondary factors from a more fundamental set of elements embedded in the teaching-learning process. In identifying these fundamental elements, the models resort to a modified version of the paradigm developed conceptually by Bergevin, McKinley and Smith (1964) and operationally by Lam and Wong (1974). In their framework content and structure are the two basic components of the classroom process. It is stipulated that comprehension is the end-product of (i) content factors, measured in terms of curriculum input in the course such as reading materials of all types, assignments, adequacy of instructors' preparation, and (ii) formal interpersonal process, conceptually a component of structure, which is operationally assessed in terms of the contribution of such instructional methods as lecture and discussions. Satisfaction with the courses and instructors are conceived to be derived from another component of structure, i.e., informal interaction process, measured by the perceived approachability of instructors and sociability of classmates.

#### *Statement of the Problems*

To test this transitional model of perceived changes in needs and expectations of adult learners, four specific questions for governing empirical investigation are raised:

- (1) What are the characteristics of the initial needs and expectations of adult learners when first enrolled in the courses?
- (2) How are background factors, classroom factors and perceived changes in needs and expectations related to one another?
- (3) Which are crucial factors accounting for perceived changes of needs and expectations?
- (4) How do the four types of learners identified by the model differ in terms of content factors, formal interpersonal factors, informal interpersonal factors, degree of satisfaction with courses and instructors, and course performance?

## *Methodology*

### *Sample*

Seventy-one adult learners attending five professional courses offered by two instructors at Brandon University were selected for the present study. These five courses were representative of several programs for upgrading educational practitioners in the field as well as for preparing the final year university students for teaching careers. Thus participants of these courses varied considerably in their backgrounds: some were university students; some were teachers, teacher-aides, or guidance counsellors, and others were principals or vice-principals.

### *Data Collection Procedures*

When first enrolled in the five courses in September, 1974, students were asked to write down their needs and expectations. The two instructors involved were asked to rate these needs and expectations by two scales in order to detect degree of specificity and amount of discrepancy between the learners and instructors in terms of their expressed needs and expectations. In the case of specificity, rating of each student was done separately by both instructors so that inter-rater reliability could be assessed. In January, 1975, when the courses came to an end, students were asked to respond to a questionnaire soliciting information regarding their background, their perceived changes in needs and expectations of the courses, and various aspects of classroom interactions. Items pertaining to content and structural factors basically resembled those developed in the previous study (Lam & Wong, 1974). Students' overall grades were consulted as indicators of their performance in the courses. Reliability of the instrument developed was detected by inter-item coefficients between one key item and a number of items measuring content and structural factors. Values of internal consistency were found to range from .54 to .68.

## *Findings and Discussion*

### *Nature of Learners' Initial Needs and Expectations*

It was found that 43 (over 61%) of the sample subjects were rated un-specific compared with 9 (12%) who were considered moderately specific, and 19 (27%) whose needs and expectations were viewed to be quite specific. Inter-rater reliability in this aspect was significantly high (.679) suggesting a high degree of consistency of judgment of the instructors concerned. An apparent conclusion drawn at this stage would be similar to Burgess' gross observation (1971) that adults were in most cases incapable of phrasing precisely what they expect from the courses. Correlational analysis of learners' backgrounds and need specificity (Table 1) shed additional interesting findings in this area. That age was negatively related to degree of need specificity ( $-.28, p < .02$ ) suggested that precision of need statements decreases as learners are older. That sex was significantly associated with need specificity ( $.26, p < .05$ ) revealed that female learners possess greater ability of making their expectations concrete. That occupation should be negatively related with need specificity ( $.26, p < .05$ ) indicated that teachers and other school personnel were more aware of the nature of professional courses. In fact, the amount of knowledge regarding what



TABLE 1  
CORRELATIONAL ANALYSIS OF ALL VARIABLES

	Sex	Occupation	Exp. Spec.	Exp. Discr.	Assignment	Reading	Preparation	Discussion	Lectures	App. of In.	Soc. of Cl.	Satisf. In.	Satisf. Cl.	Performance	Change
Age	.10	-.17	-.28*	-.29	.24	.21	.29*	.17	.23	.34	.19	.38	-.15	-.05	.14
Sex		.56**	.26	.47**	.31**	.37**	.38**	.25	.47**	.09	.33**	.17	.36**	.42**	.23
Occupation			-.26	-.37**	.31**	.31**	.26	.33**	.35**	.12	.20	.15	.21	-.41**	.23
Exp. Spec.				.85**	.13	.17	.16	.06	.05	-.02	.25	-.01	.27	.36**	.20
Exp. Discr.					.12	.22	.14	.15	.07	-.08	.34**	-.05	.22**	.39**	.24
Assignment						.62**	.74**	.59**	.66**	.54**	.56**	.64**	.69**	.55**	.21
Reading							.73**	.60**	.64**	.62**	.58**	.60**	.53**	.48**	.27
Preparation								.71**	.82**	.75**	.70**	.75**	.73**	.56**	.39**
Discussion									.71**	.55**	.58**	.64**	.53**	.55**	.44**
Lectures										.63**	.58**	.68**	.69**	.61**	.49*
App. of In.											.56**	.86**	.54**	.43**	.37**
Soc. of Cl.												.61**	.55**	.66**	.25
Satisf. In.													.66**	.45**	.41**
Satisf. Cl.														.48**	.24
Performance															.21

— significant at 0.05  
\* significant at 0.02  
\*\* significant at 0.01

professional courses entail very often determines the amount of specificity in the spelling out of initial needs.

In terms of the extent of initial need discrepancies between learners and instructors, it was found that a high proportion of participants (58%) were rated as having needs very dissimilar from those of the instructors. Of the remaining sample, 15% (11 participants) were rated as having a set of somewhat similar expectations, while 27% (19 students) were considered sharing expectations close to those of the instructors. The highly significant coefficient between degree of need specificity and the extend of need discrepancies (.85,  $p < .01$ ) (Table 1) strongly suggested that instructors' judgment of the distance between learners' felt needs and the ingredients to be incorporated into the professional courses, was influenced by learners' precision of describing their needs. It is not surprising then to find that correlational analyses on age, sex, occupation with need discrepancies yielded an identical pattern detected in the foregoing case dealing with need specificity.

*Inter-relationships among Background Factors, Classroom Factors, Performance and Perceived Changes of Needs*

Table 1 summarized the correlational analysis of all variables involved in the study. Examining first of all the background factors, age, sex, and occupation, it was found that older female participants whose occupation was identified as students tended to perceive more favourably the degree of instructors' preparations. Female student participants irrespective of age were more inclined to feel that they benefited a great deal from lectures and discussions. In addition, female participants were more inclined to find their classmates sociable and to develop a higher degree of satisfaction with the course. Better performance was also found among female school personnel.

In terms of perceived changes of needs and expectations at the end of the courses, it was found that female student learners expressed a significantly greater degree of change than other groups. Age turned out to be unrelated to perceived change. Additional chi-square analysis of learners by courses in which they enrolled indicated that the kind of courses did not make any significant differences in perceived need changes ( $\chi^2 = 13.26$ ,  $df = 12$ ).

References to inter-correlation coefficients among content factors (reading materials, assignment, preparation of instructors), structural factors, conceived to include formal interpersonal process (lectures and discussions) and informal interpersonal process (approachability of instructors and sociability of classmates) revealed a pattern of close relationships among all these factors which reaffirmed intimate associations between content and structure reported in the earlier study (Lam & Wong, 1974). Each of these factors, in addition, was found to bear significant relationship with their overall performance in the courses.

In terms of perceived changes of needs and expectations, it was found that other than two factors, assignment and performance, all content and structural variables attained significant relationships with perceived need changes. That assignments and overall performance should be independent



of perceived changes could imply that perceived need changes could be brought about without demonstration of real understanding as measured by assignments and overall performance of courses. This should be borne in mind when examining the latter part of the analysis.

Crucial Factors Affecting Perceived Changes of Needs

Which are the most important variables accounting for such a change in perceived needs? What dimensions—background factors, content factors, formal interpersonal factors and informal interpersonal factors—contribute most to our understanding of learners' perceived change of needs and expectations?

TABLE 2  
STEPWISE MULTIPLE LINEAR REPRESSON ANALYSIS DENOTING  
THE RELATIVE CONTRIBUTION OF INDIVIDUAL VARIABLE TO THE  
ULTIMATE PERCEIVED CHANGE OF NEEDS

Variable	R <sup>2</sup>	df <sub>1</sub>	df <sub>2</sub>	F
Lectures	.2422	1	69	7.107**
Satisfaction with Course	.2909	2	68	3.525*
Satisfaction with Instructor	.3264	3	67	3.762*
Assignment	.3410	4	66	0.644
Discussion	.3533	5	65	1.907
Performance	.3607	7	63	0.770
Occupation	.3661	8	62	0.165
Reading	.3707	9	61	0.620
Preparation	.3725	10	60	0.178
Sex	.3738	11	59	0.183
Age	.3749	12	58	0.102
Sociability	.3751	13	57	0.013

\* significant at 0.05

\*\* significant at 0.01

Stepwise multiple linear regression analysis (Table 2) indicated that lecture was the single most pertinent factor that explains learners' perceived changes in needs and expectations, followed by satisfaction with courses and satisfaction with instructors. Apparently, the lecture as a mechanism accounts for the greatest amount of course input that enhances learners' understanding of the content of courses. This may, in turn, transform the ambiguous felt needs into more precise educational needs. In another dimension, positive affective responses to the way courses are organized and to instructors as individuals also contribute to the resultant changes of learners' perceptions of their needs and expectations.

In assessing dimensional impact upon perceived changes of needs and expectations through multiple correlation analysis (Table 3), it was found that satisfaction and formal interpersonal process are significant aspects explaining changes of perceived needs; content and informal interpersonal

TABLE 3  
MULTIPLE CORRELATION ANALYSIS SHOWING RELATIVE EFFECTS  
OF DIMENSIONS UPON PERCEIVED CHANGE OF NEEDS

Dimensions	R	R <sup>2</sup>	df <sub>1</sub>	df <sub>2</sub>	F <sup>4</sup>
Satisfaction	.424	.180	2	68	7.4649**
Structural Factors	.398	.158	4	66	3.1102*
Content Factors	.200	.040	4	66	0.6875
Background Factors	.063	.004	3	67	0.0896

F ratios calculated to detect if the observed multiple correlation coefficient is significantly different from zero. (Refer to G. A. Ferguson, Statistical Analysis in Psychology and Education. 3rd ed. McGraw-Hill, Toronto, 1971, p. 401.

process on the other hand do not attribute much to the alteration of perception of need change. Evidently, dimensional analysis tends to reinforce the relative effects of individual factors previously noted rather than shedding additional light upon the impact of conceptually homogeneous blocks of variables on learners' perceived change of needs.

*Variations of Four Identified Types of Learners in Content  
Structural Factors, Satisfaction and Performance*

In transposing the proposed theoretical model of four possible groups of learners in terms of the degrees of initial need discrepancy and of ultimate perceived change of expectations, it was found that 15 learners (22% of the sample) were in group I (i.e., similar initial needs/small perceived change); 10 belonged to group II (similar initial needs/great perceived change); 13 learners (19%) were in group III (dissimilar initial needs/small perceived change) and 28 learners were in group IV (dissimilar initial needs/great perceived change).

Based on the composite scores of content, structural factor, satisfaction and performance, multiple group comparisons were carried out by t-tests.

With respect to content factors, all the t-tests detecting intergroup differences turned out to be insignificant; with respect to the first set of structural factors, i.e., the formal interaction process, it was found that group IV was significantly different from group III ( $t = 2.133, p > .05$ ). With respect to the second set of structural factors and satisfaction level, all the t-tests did not yield statistical difference. With respect to overall performance (Grades), it was found that group I was significantly different from group III ( $t = 2.348, p > .05$ ) and from group IV ( $t = 2.620, p > .02$ ). This implies that the group that shared similar initial needs with the instructors and perceived small ultimate changes of expectation performed far better than groups that had initial needs greatly dissimilar from those of instructors but experienced little change of needs, as well as the group that was identified as having needs greatly different from instructors and admitted great change of ultimate needs.

While the difference between group I and group III is to be expected, as the latter apparently benefit least by the interaction process, the difference between group I and IV deserves close scrutiny. Reference to the previous



TABLE 4  
MULTIPLE COMPARISONS OF FOUR GROUPS OF ADULT LEARNERS  
IN VARIOUS DIMENSIONS (t-tests)

Dimensions	Groups Compared					
	I/II (N=25)	I/III (N=28)	I/IV (N=43)	II/III (N=23)	II/IV (N=38)	III/IV (N=41)
Content	2.056	.653	1.871	.978	-.286	.897
Structural Factor I (Formal Inter- personal Process)	-.4668	.499	-.747	1.551	-.050	-2.133*
Structural Factor II (Informal Inter- personal Process)	1.254	.197	-.041	-.755	-1.027	-.213
Satisfaction	.889	-.455	-.202	-1.020	-1.195	.375
Performance	1.028	2.348*	2.620**	1.111	1.110	-.355

\* significant at 0.05  
\*\* significant at 0.02

analysis indicated that assignments were not related to perceived changes and that occupation was inversely related to performance (i.e., participants who were currently teachers, administrators and other school personnel performed better than final year university students). This emphasizes that demands from these professional courses were pragmatic in nature and those in the field were more capable of transferring their practical experience to meet course requirements.

### *The Proposed Theoretical Model of Adult Learners' Needs*

By patching up findings which answer the four questions raised in the study, it is found that the initial model remains more or less intact though specific relationships among factors and specific weights assigned to each of these factors demand some degree of revision:

First of all, satisfaction with the course and instructors is derived from the entire classroom process of interaction rather than the informal contact between instructors and learners, and among classmates.

Secondly, it is satisfaction rather than comprehension which as a dimension accounts to a larger extent for the perceived changes of learners' needs and expectations.

Following the previous point, perceived changes of needs and expectations do not correspond proportionally to increased absorption or comprehension of course materials.

### *Summary and Conclusion*

By locating three possible fallacies associated with the conventional "needs approach" of program planning for adult learners, the present paper proposes a theoretical model that accounts for a possible evolution of real educational needs of learners and identifies varying impacts of the process upon learners' perceived need changes. Examination of adult

learners' initial needs reveals that most are neither specific nor close to those of instructors, though it does not rule out the possibility that some are capable of defining what approximates the real educational needs. A practical implication for adult educators here is that reference to the backgrounds of adult learners is useful in identifying participants who need extra help in developing a more realistic set of expectations. In other words, rather than abandoning the responsibility of defining needs to the learners in planning professional courses, adult educators should assume the initiative in identifying the accurate expectations for the learners.

Though background, content and structural factors through their relationships with comprehension or with satisfaction level all seemed to have a bearing upon differences in modification of initial needs, it is the formal interpersonal process, i.e., lectures, satisfaction with courses and with instructors, that are most crucial in bringing about perceived need changes.

Thus the initial stage of identifying and developing learners' real educational needs should be followed by a period of careful organization and presentation of materials to maintain the interests of learners within the defined curriculum.

The four types of learners identified through the professed impacts of the process upon their needs exhibit some variations in their reaction to the formal interpersonal process and in their overall performance. The group that underwent a tremendous change of needs was evidently more responsive to the formal mechanism of knowledge, skill and attitude transmission than the one that indicated the least changes in perceived needs, while the group that embraced the most accurate educational needs was superior in performance to all others. To the educators, therefore, assessment of the learning outcome should not depend exclusively upon attitudinal feedbacks from the learners, as is usually the case in adult courses, but it should be based upon objective criterion measuring the cognitive intakes as well.

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J. W. OSBORNE

*The University of Alberta*

## An In-service Course for Instructors at the University of Alberta, an Evaluation

*About 60 instructors from various faculties within the University of Alberta attended an in-service course over six weeks for two hours per week. The topics covered were instructional objectives, task analysis, performance assessment, basic variables in learning, audiovisual media and computer assisted instruction. Comparison of pre- and post-test scores indicated significant learning in these areas resulting from the course. A follow-up questionnaire indicated a strongly positive response to the course and the proposal to establish a permanent center to promote better teaching within the University. (Dr. Osborne is Associate Professor in the Department of Educational Psychology, The University of Alberta.)*

The primary purposes of this project were to (a) determine the extent of faculty interest in learning more about instructional techniques and (b) to begin to provide a service to cater to this end. Recent reports from University committees and individual faculty suggested an awareness of a need for such a service. This course included the collection of certain data intended to provide a clearer picture of whether the establishment of a permanent agency to facilitate teaching and instructional research at the University of Alberta would be worthwhile step.

This in-service course was run as a six week workshop with two sessions per week on each of the following topics: Instructional Objectives, Task Analysis, Performance Assessment, Basic Variables in Learning, Audio-Visual Media (AV), Computer Assisted Instruction (CAI).

The course was offered in three sections during January and February, 1975. Each of these six areas was taught by a separate instructor from within the Faculty of Education. The theoretical basis for the course was the basic model of Glaser (1962). The idea was to concentrate upon the basic components of the instructional situation to provide a conceptual understanding and then to deal with some of the available techniques in those component areas.

Method

Approximately one hundred faculty across the university expressed interest in the course. About sixty instructors subsequently enrolled in one of the three sections of the course. An entering behavior test and a pre-test were administered to all participants. The mean total teaching experience was eight years of which the majority was spent in a university setting. There was a very low level of prior instructional training. A strong majority favored a structured approach to teaching. The majority also viewed teaching as a “relatively difficult” activity. These data along with voluntary participation suggested a receptive audience for the course and justified the fairly basic approach. Course instructors contributed five short objective type items to the pre-test.

Each instructor re-administered those items relevant to his topic at the conclusion of his two-class session. The pre-test scores were generally quite low in all topic areas. Participants were also given sample “between course” and “within course” (cf. Smock & Crooks, 1973) course evaluations and were encouraged to gather data about their own teaching. At the end of the course, participants completed a questionnaire which evaluated the project.

Results

Pre- and Post-Test Scores

The mean pre- and post-test scores for the various topic units of the course are shown in Table 1.

TABLE 1  
PRE- AND POST-TEST MEANS FOR TOPIC AREAS

Topic	Sample Size	Pre-Test	Post-Test
Instructional Objectives	36	26	87
Task Analysis	27	0	22
Performance Assessment	29	45	73
Basic Variables in Learning	18	39	72
Audio Visual Media	21	44	75
Computer Assisted Instruction	13	6	83

Note: All increases from pre- to post-test were statistically significant ( $p < .001$ ).

Significant post-test increases occurred for all topics. However, the level of performance in the area of task analysis was rather low. This area may have been too difficult to deal with in a short course.

Follow-Up Questionnaire

1. Following completion of the course, a questionnaire was sent to all participants. Forty-three participants returned their questionnaires. Table 2 shows the percentage attendance for the various topics and sessions.
2. Answers to question two (“Which topics did you find interesting or relevant to your teaching situation?”) emerged: Instructional Objectives, 84%; Task Analysis, 30%; Performance Assessment, 67%; Basic Variables in



TABLE 2  
PERCENT SESSION ATTENDANCE

Topic	Session	
	I	II
Instructional Objectives	67	88
Task Analysis	67	67
Performance Assessment	90	60
Basic Variables in Learning	63	44
Audio Visual Media	60	60
Computer Assisted Instruction	50	35

N = 43

- Learning, 30%; Audio-Visual Media, 53%; Computer Assisted Instruction, 32%.
3. Responses to question three (“Which topic sessions gave you something you could use in your teaching?”) were: Instructional Objectives, 72%; Task Analysis, 35%; Performance Assessment, 58%; Basic Variables in Learning, 30%; Audio-Visual Media, 49%; Computer-Assisted Instruction, 28%. It should be noted that some of the responses on the questionnaire concerning the benefit derived from various topics were to some extent an artifact of attendance; for example, the low utility of computer assisted instruction registered on item three of the questionnaire. Some people “skipped” this topic because they thought it too unrealistic or visionary. In this regard, attendance was influenced by prevailing prejudices.
4. Responses to question four (“Briefly list any changes or modifications you have made or intend to make in your teaching”) fell into the following categories:
- |  |     |
|--|-----|
| (a) Initiated revision of own objectives         | 58% |
| (b) Improved assessment procedures               | 30% |
| (c) Increased use of AV                          | 21% |
| (d) Thinking about AV or changing approach       | 4%  |
| (e) More sensitive to student needs              | 6%  |
| (f) Development of personal ability and attitude | 4%  |
| (g) Intending to use CAI                         | 2%  |
| (h) Intending to use task analysis               | 4%  |
5. Those having some difficulty in understanding particular topics broke down: Instructional Objectives, 4%; Task Analysis, 47%; Performance Assessment, 4%; Basic Variables in Learning, 16%; Audio-Visual Media, 0%; Computer Assisted Instruction, 0%.
6. Topic areas where further help was requested were: Instructional Objectives, 18%; Task Analysis, 11%; Performance Assessment, 25%; Basic Variables in Learning, 9%; Audio-Visual Media, 23%; Computer Assisted Instruction, 21%.
7. Responses to question seven (“Would you attend future in-service

- courses?") were: Yes, 56%; Probably Not, 3%; Definitely Not, 6%; Conditional Yes ("Depends"), 35%.
8. Thirty percent of the respondents indicated a desire for consulting help with general instructional problems, while 18% asked for help in particular instructional areas.
  9. Eighteen percent of the respondents preferred a survey type course while 72% asked for increased specialization in fewer areas.
  10. Responses to question twelve ("Do you believe that this course has helped you with your teaching?") were: yes, 56%; "very beneficial", 7%; "moderate benefit", 7%; "small benefit", 7%; "of questionable use", 5%; "no benefit", 5%.
  11. Eighty-one percent of the respondents favoured the establishment of a "permanent center within the university to promote better teaching." Seven percent did not favour such a move, while 7% approved with reservations and 2% thought it "questionable."

The pre- and post-test data together with responses referred to above (7, 10, 11) suggest that the project was successful. Ninety-one percent of the respondents said they would attend a future course (some conditionally). This indicates that there is a substantial base of interest in in-service instructional education which was reinforced by this course. Only six percent expressed no further interest.

Only twelve percent of the respondents did not favour the establishment of a permanent centre within the university to promote better teaching-learning. Only nine percent of the participants thought the course was not worthwhile. The above evidence supports the claim that the project was generally successful and that further developments are warranted.

The areas of instructional objectives and performance assessment emerged as the most relevant and resulted in the highest amounts of intended change in instructional techniques. A majority of participants preferred to see more specialization in fewer instructional areas in future. Other topics relevant to teaching but not covered in the course were not requested with great frequency, tending to justify the choice of topic areas for the present course. There was no strong desire to drop any area (except, perhaps, task analysis) from the topics chosen.

The time of year during which the course was held appears to be the most popular one. There was a slight preference for workshops with colleagues in other teaching areas and for workshops over shorter time periods.

The problems of attendance and time constraints were the major difficulties of the course. This could be largely eliminated with a course which runs over several days and where the University offers incentives to those who attend. Several participants commented upon the view that the devotion of much energy to improving their teaching was highly likely to go unrewarded in terms of salary and promotions.

This project clearly indicated an interest by a substantial number of faculty in improving their teaching at the University of Alberta. Data suggest that the course was successful in terms of learning outcomes and



as a pilot for more elaborate later developments such as a permanent center for instructional development.

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## The Quantification of Individual Student Verbalization in a Second Language Classroom

*The purpose of this study was to examine student verbal behavior in somewhat greater detail than is possible with Flanders System of Interaction Analysis (FSIA). This resulted in the development of the Preliminary L2 System (L2P) which is basically a modification and extension of FSIA and is specifically designed to describe verbal interaction in second language classrooms. The L2P provides information about the nature and extent of individual student verbal participation. Such monitoring of individual student verbalization is possible by means of a positional seating scheme which permits observations to be treated statistically as frequency data for individuals.*

*One grade eleven French class of twenty-seven students using Voix et Images de France was coded using the L2P for approximately one-half hour daily for four consecutive days at times when students were engaged in oral work.*

*For purposes of analysis, the data were grouped by student sex and achievement (term French grade). Students whose grades were above the class mean of 73 per cent were designated as high achievers (HA, N=14) and those below the mean as low achievers (LA, N=13). No sex difference in achievement was apparent.*

*For the four observation instances combined, it was found that boys participated proportionately more extensively than did girls (0.55 vs 0.45) in the classroom verbal interaction. HA verbalized more than LA (0.60 vs. 0.40) and used a greater proportion of divergent verbal behavior (behavior encompassing a wide variety of both solicited and self-initiated open-ended verbalization) than did LA (0.56 vs. 0.36). LA displayed a higher proportion of convergent verbalization (specific solicited responses) than did HA (0.64 vs. 0.44). It was also found that the teacher praised the answers of HA more extensively (0.66 vs. 0.34) than those of LA, used their ideas more frequently (0.72 vs. 0.28), and gave them more overall feedback (0.60 vs. 0.40).*

*The results established the feasibility and utility of the L2P as a source of detailed information about the nature of teacher-student dyadic interaction in second language classrooms. (Ms. McEwen is a graduate student in the Department of Secondary Education, The University of Alberta.)*



This report presents the preliminary development and field-testing of an observational system designed specifically to describe teacher-student dyadic interaction in second language instructional settings. The system differs from its parent, the Flanders System of Interaction Analysis (Flanders, 1970) in that it provides more detailed specification of student talk and identifies the verbal participation of individual students. Thus relationships between teacher instructional strategies and individual and group differences among students can be examined with greater precision than is possible by means of data based on the total class as the unit of analysis. The purpose of this report is to describe the observation system and its development, to present the results of the field test, and to discuss the implications of the field trial for revision and expansion of the system.

### *Related Research*

Research in second language instruction by means of classroom verbal interaction observational systems has been limited to describing what is observed to occur in selected classrooms or to training teachers in a given system and observing resultant changes in teacher verbal behavior (Maurice, 1968; Moskowitz, 1968; Gagnon, 1969; Wragg, 1970; Nearhoof, 1971; McEwen, 1972). Each of these studies used the class as the unit of analysis.

A change in research design from the class to the individual as the unit of analysis appears appropriate conceptually and is more powerful statistically than are group-based methods for purposes of description and evaluation of the function of specific teacher behaviors in relation to student learning outcomes (Brophy & Good, 1969). By identifying which student is talking, somewhat different aspects of the quantity and quality of teacher-student contact become amenable to study. Data for the entire class treated as a group may be obtained by combining all the individual students codes.

There is some evidence to suggest that correlations between student variables and interaction data derived from group-based scores vary significantly from those calculated from individual scores (MacDonald, 1972). Individual student interaction data have been reported in the literature and include comparisons based on sex (Jackson & Lahaderne, 1967), achievement level (Good, 1970; MacDonald, 1972), and attitudes of students (MacDonald, 1972). The results suggest that students may not receive equal opportunity to participate in classroom activities, that the teacher can manipulate the performance of individual students by his patterns of solicitation and reinforcement, and that consequently much of the educational progress of individual students remains in the hands of the teacher. The most important observation seems to be the variety of individual differences in classroom behavior. It would appear that viewing a classroom as a unit whose participants share a common educational experience is not always warranted (Jackson & Lahaderne, 1967).

### *The Preliminary L2 System*

#### *Development*

During the 1972-1973 academic year, two fourth year undergraduate German majors at the University of Alberta were enrolled in a special ad-

vanced modern languages methods course designed to assist them in the development of strategies in the teaching of German as a second language. Initially the two students were trained in the Flanders system according to the program and procedures suggested for the system by its developers (Amidon & Flanders, 1971). When the student teachers had assimilated the information and were competent at coding, plotting matrices, and calculating descriptive indices, they were assigned to a class of four grade eight students to whom they taught *Verstehen und Sprechen* (Rehder et al., 1962). The four students were volunteers who had participated the previous year in a program designed to provide German majors enrolled in the undergraduate modern languages methods course with teaching experience in a controlled learning environment. The two undergraduate German majors were among those who had participated in the previous course.

Initially, the investigator coded the interaction and the student-teachers practiced until they achieved a reliability rating which consistently attained the criterion level specified by the investigator. The criterion of 0.90 using Scott's Coefficient was used to maintain inter- and intra-observer reliabilities for the remainder of the project (Flanders, 1966). One-hour classes were held twice weekly over a five month period. While one student teacher taught, the other coded the verbal interaction. Each student teacher taught one half of each lesson. Weekly discussions were held among the student teachers and the investigator to monitor the evolving teaching strategies.

As a focus of the strategies was the desire to increase student verbal participation, additional student categories were deemed necessary to permit the desired analysis. The Flanders student categories were modified as follows: student talk was divided into two major areas labelled convergent (categories designated by 8) and divergent (categories designated by 9) verbal behavior. Essentially, convergent student talk allows the student little choice of selection in his verbalization. He is expected to reply to a specific question (category 8) or to ask a question which has been specified by the teacher (category 8q). Divergent student talk allows the student considerable freedom of choice in either answering a question or in making a self-initiated comment (category 9), helping other students (category 9c), or asking an original question (category 9q). Another category peculiar to second language instruction is the use of divergent talk in English (9e) which was also incorporated into the system. The teacher categories were felt to be appropriate and thus left intact. Flanders' category 10 was modified to include any non-verbal activity. The revised system consisting of six student categories, seven teacher categories, and one for non-verbal activity was termed the Preliminary L2 (second language) System (L2P) and is presented in Figure 1.

The identification of the type and amount of participation for each individual student was deemed to be an important source of information for teacher strategy development. Consequently, it was necessary to code for both category type and student source. Since only four students were involved, the first letter of their names was used for identification. It was recognized that this type of designation, while possible in a small class of four students, would not be appropriate in a conventional class of twenty-



FIGURE 1  
PRELIMINARY L2 SYSTEM

Teacher Talk	Indirect*	1.	<u>Accepts feeling.</u> Accepts and clarifies an attitude or the feeling tone of a student in a nonthreatening manner. Feelings may be positive or negative. Predicting and recalling feelings are included.
		2.	<u>Praises or encourages.</u> Praises or encourages student action or behavior. Jokes that release tension, but not at the expense of another individual; nodding head, or saying "um hm?" or "go on" are included.
		3.	<u>Accepts or uses ideas of students.</u> Clarifying, building, or developing ideas suggested by a student. Teacher extensions of student ideas are included but as the teacher brings more of his ideas into play, shift to category 5.
		4.	<u>Asks questions.</u> Asking a question about content or procedure, based on teacher ideas, with the intent that a student will answer.
	Direct*	5.	<u>Lecturing.</u> Giving facts or opinions about content or procedure; expressing his own ideas, giving his own explanation, or citing an authority other than a student.
		6.	<u>Giving directions.</u> Directions, commands, or orders to which a student is expected to comply.
		7.	<u>Criticizing or justifying authority.</u> Statements intended to change student behavior from nonacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.
Student Talk	Convergent	**8.	<u>Convergent answer.</u> Responding to the teacher about specific material he is learning or has learned. The student has little or no choice of answer as the response is predictable from the question asked.
		**8q.	<u>Convergent question.</u> Asking a specific question as directed by the teacher.
	Divergent	**9.	<u>Divergent answer or comment.</u> Responding to the teacher or initiating the communication; the student expresses his own ideas, opinions, reactions or feelings. He has considerable freedom of choice in his verbalization.
		9c.	<u>Student-to-student assistance.</u> Assisting another student with his answer. The student has not been called upon to do so by the teacher; he does so of his own free will.
		**9q.	<u>Divergent question.</u> Asking a question which the student initiates himself or for which he has the choice of selection.
		9e.	<u>Comment in English.</u> Making a comment in English which is not necessarily relevant to the classroom activity. The comment may be disruptive.
		**10.	<u>Non-verbal Activity.</u> Pauses, short periods of silence, and periods in which non-verbal activities occur.

\* Flanders, 1970

\*\* Similar to Flanders, 1970, p. 141.

five or more. A seating scheme was devised which would identify individual students in a traditional classroom setting. This is a two-digit positional scheme based on the seating arrangement in the classroom. Each student is identified by his position in the configuration of desks. The first digit represents the row in which the student is seated while the second digit represents his position in the row. The advantage of this kind of identification scheme is that the observer can walk into any second language classroom and code the interaction on an individual student basis without first having to learn the names of the students.

This identification scheme may be used in conjunction with the L2P categories in the following manner: If, for example, the student in the upper left hand corner of the classroom answers an open-ended question, the statement would be recorded as 9-11, the 9 indicating the type of response, and the 11 identifying the student who made the response. A series of teacher-student remarks could therefore appear as follows:

4  
8-21  
2  
6  
8q-32  
8-45  
2

The above method of student coding permits three-fold data analysis: that of the total class as reported by Flanders, grouping students on selected variables, and reporting individual student differences. A conventional second language class was identified in order to explore relationships among these variables.

### *Field Testing*

A grade eleven French 21 class of twenty-seven students for whom current French achievement data were available from the teacher was observed for the period of one week in the spring of 1973. During observation, the class was involved in the oral phases of lesson 23 in *Voix et Images de France* according to the procedure outlined for its use (Renard & Heinle, 1969). *Voix et Images de France* (VIF) is a highly structured audio-visual method of teaching French as a second language wherein the student is called upon frequently to participate verbally. The use of English and choral responses is actively discouraged by the methodology. During the observational sequence, explanation, repetition, and transposition were observed.

The class consisted of fifteen girls and twelve boys whose mean achievement scores on their most recent report card was 73 per cent with a standard deviation of 11.5. The means were identical for both sexes although the standard deviation was slightly higher for girls than for boys (12.2 vs. 11.0).

The first day of the week was used by the investigator to become acquainted with the classroom situation and the learning environment. The codes for that day were not used for analysis. The initial five minutes of each of the succeeding four days were used by the observer to establish the teacher's frame of reference for the activities to follow. Recorded observations ranged from approximately twenty to thirty minutes, depending on how long the teacher conducted oral work. Reading and writing activities were not observed.

### *Results*

In order to present a composite picture of overall teacher strategy, the aggregate of the four observation instances is reported. Daily instructional differences based on the VIF phase used are not reflected in the composite



data. For specific elaboration of individual phases, the reader is referred to an earlier report pertaining to the present study (McEwen, 1973).

Class Interaction

The teacher observed was an experienced French teacher who had received training in interaction analysis in conjunction with an earlier study (McEwen, 1972). The teacher was familiar with the procedures of the instructional methodology and conducted his classes accordingly.

Table 1 presents the per cent distribution of classroom interaction among the given categories. Teacher talk accounted for 41.3 per cent of the interaction, student talk for 50.2 per cent, and non-verbal activities for 8.5 per cent. Of talking behaviour, student talk was proportionately higher than teacher talk (0.55 vs. 0.45). The teacher produced no category 1 behavior at all, signifying that in the classes observed he was not overtly concerned with verbalizations about student feelings. The two major evaluative categories, praise and criticism, accounted for 5.9 per cent and 2.6 per cent of the interaction, respectively. The remainder of teacher talk was distributed fairly evenly among the other four categories: use of student ideas (8.3 per cent), questions (8.2 per cent), information (8.3 per cent), and directions (8.0 per cent). It would appear that the teacher was primarily concerned with the content aspect of classroom verbal interaction.

Considerable variation in the distribution of student talk among the various categories was observed. Convergent response includes eighteen instances of choral response representing 3.5 per cent of all category 8 verbalization and 1.8 per cent of total student talk. This very low incidence of

TABLE 1  
PER CENT DISTRIBUTION OF INTERACTION AMONG  
PRELIMINARY L2 CATEGORIES

		Description	Category	Per Cent	Total
Teacher Talk	Indirect	Feelings	1	0.0	41.3
		Praise	2	5.9	
		Use of Ideas	3	8.3	
		Questions	4	8.2	
	Direct	Information	5	8.3	
		Directions	6	8.0	
		Criticism	7	2.6	
Student Talk	Convergent	Answer	8	25.5	50.2
		Question	8q	1.0	
	Divergent	Answer	9	14.2	
		Assistance	9c	3.5	
		Question	9q	4.1	
		English Comment	9e	1.9	
Non-Verbal			10	8.5	8.5

choral response suggests that considerable dyadic interaction can occur in classrooms under the VIF method of instruction. Student questions, both convergent and divergent, usually reflect teacher-directed verbalization. The teacher observed solicited more divergent questions than convergent questions (4.1 per cent vs. 1.0 per cent) from the students. Teachers generally have limited control over the use of English and of student-to-student assistance. It is encouraging that little English was used (1.9 per cent) but that students did assist one another (3.5 per cent).

Similar overall amounts of convergent and divergent verbal behavior were exhibited by the students (0.53 vs. 0.47). Convergent response to specific teacher solicitations accounted for approximately 95 per cent of convergent talk while divergent response accounted for almost 60 per cent of divergent talk. The observation of all types of student talk categorized in the L2P system suggests that the verbal behaviors originally identified in the small class of four students are also produced in a conventional class and that the system is capable of discriminating among the behaviors represented by its student categories.

### *Group Differences*

As well as overall class interaction, student verbal behavior classified according to sex and achievement level was analyzed. The eighteen instances of choral response were eliminated. The distribution of verbal behavior among all the student categories was computed separately for each student group in question. The resulting proportions in each category were in turn compared by sex and achievement level in order to reveal differences in the teacher's solicitation strategy for each group. The proportion of verbalization in each category taken separately as partitioned between males and females and between high and low achievers was also computed and compared in order to reflect differences among groups. For example, males and females may have similar proportions of convergent talk as compared to other talk categories when these proportions are compared on male total and female total talk, respectively. When males and females are compared on relative frequency of total verbalization within a given category, these proportions may be quite different, reflecting the differences in total frequency of talk for each group. Similar comparisons were made with respect to teacher feedback strategy.

One aspect of teacher solicitation strategy may be ascertained by determining the frequency with which boys and girls were asked to participate verbally. Student responses (categories 8 and 9) to the teacher's content questions (category 4) were examined. It was found that similar proportions of such directly-solicited response were produced by males and females when compared with all other instances of student talk for each group separately (0.12 vs. 0.13). When the two groups were compared on response to a content question, boys received somewhat more response opportunities than did girls (0.53 vs. 0.47).

No significant differences were found across student categories for males and females separately. These data suggest that the teacher elicited student participation along similar lines for boys and girls. The relative comparison of student talk within each category revealed that boys talked significantly more frequently than did girls in terms of convergent, divergent, and total



talk (0.55 vs. 0.45). As both groups had similar verbalization patterns even though boys talked significantly more than girls, differences attributed to sex were not explored further.

The fourteen students with term grades of 75 or above were designated as high achievers and the thirteen students whose term grades were 70 or below were designated as low achievers. When the frequency of student response (categories 8 and 9) to the teacher's content questions was examined for high and low achievers separately, equivalent proportions were found (0.12 vs. 0.12). Comparing the responses of the two achievement groups on this variable indicated that high achievers were called upon significantly more frequently than were low achievers (0.62 vs. 0.38). Upon analysis of the distribution of student talk across categories for each achievement group separately, significant differences in teacher strategy for the two groups emerged. Low achievers produced significantly more convergent response (0.62 vs. 0.42) and more convergent talk (0.64 vs. 0.44) than high achievers while the latter produced significantly more divergent talk (0.56 vs. 0.36) than the former.

High achievers produced significantly more talk in all four divergent categories than did low achievers. High achievers talked fully one and one-half times as much as did low achievers. These results suggest that the teacher not only called upon the high achievers significantly more frequently but also that he directed more response opportunities for open-ended verbalization to them than to low achievers.

As the teacher's solicitation strategy was found to favor the high achievers his feedback pattern to achievement groups was examined in more detail in order to determine whether or not a similar pattern would emerge. Teacher feedback to convergent and divergent response was chosen for analysis as these categories represent the most frequently-occurring types of student verbalization. They also represent behaviors most directly under the control of the teacher.

A comparison of teacher feedback across categories to a convergent response for each achievement group taken separately was made. No significant differences were found suggesting that the teacher provided a similar feedback pattern to both achievement groups. High achievers received significantly more praise than did low achievers (0.62 vs. 0.38) while low achievers received significantly more directions than did high achievers (0.71 vs. 0.29). Total feedback received was distributed evenly between the two groups.

The across category comparison of teacher feedback to a divergent response for high and low achievers revealed no significant differences. However, when the within category feedback to a divergent response for each group was analyzed, significant differences favoring the high achievers were found for use of praise (0.82 vs. 0.18), use of student ideas (0.74 vs. 0.26), and total feedback received (0.72 vs. 0.28), suggesting that the teacher generally reinforced the high achievers' verbalization more frequently than that of low achievers.

A composite picture of teacher feedback to both convergent and divergent student response compared across categories for each achievement group again found no significant differences. The teacher's overall

reinforcement strategy appears to have been parallel for high and low achievers. However, as anticipated from the earlier results reported, the data analyzed with respect to a relative comparison for the two groups to total response (categories 8 and 9) confirmed that high achievers received significantly more praise (0.66 vs. 0.34), use of their ideas (0.72 vs. 0.28), and total feedback (0.60 vs. 0.40) than did low achievers.

The results comparing high and low achievement groups which concur with those reported in the literature (Gallagher, 1967; Good, 1970) suggest that the teacher's solicitation and reinforcement strategies appear to have resulted in the disproportionately high frequency of student verbalization for high achievers relative to low achievers. Not only did high achievers receive approximately one and one-half times as many response opportunities as low achievers, but they also received correspondingly as much feedback. Perhaps high achievers are called upon to participate more frequently and in a more challenging manner than low achievers because they can usually be depended upon to answer questions correctly. The low achievers suffered not only in terms of their opportunity to participate but also in terms of the kind and amount of feedback which they received from the teacher. As the observations were carried out in the latter part of the semester, the teacher was aware of the ability level and course achievement of each student. Low achievers were not called upon frequently or challenged to answer large numbers of open-ended questions, but rather were limited to responding primarily to specific solicitations. They were provided with significantly less opportunity to practice oral skills in class than were high achievers. Speculation arises as to the development of a vicious circle for these low achieving students, i.e., the less opportunity such students are given to practice oral skills, the less they will be likely to perform well on achievement measures. Continuing this pattern over an extended period of time may create a decrement in achievement for low achievers. Conversely, the greater the opportunity of high achievers to practice oral skills, the greater their probable success. Thus the teacher's expectations of students' performance may serve as a self-fulfilling prophecy (Rosenthal & Jacobson, 1968).

### *Individual Differences*

Table 2 presents the frequency matrix for individual students over the four observation occasions. Examination of the table reveals the great variation among students in the nature and extent of talk mentioned earlier. For example, student 13, a high achiever, was a very vocal student who produced almost twice as much divergent response as convergent response. He also helped other students, asked questions, and used English. Student 41, a low achiever, produced five times as much convergent behavior as divergent behavior, repeating each sentence several times as she had difficulty with pronunciation during repetition.

Using the data on individual frequencies, it is possible to construct a profile for each student which would indicate the type and amount of verbal participation for him. This profile could provide the teacher with feedback about how a student is succeeding relative to others in the class and provide possible explanations for his progress. Such profiles could be very



TABLE 2  
AGGREGATE FREQUENCY MATRIX FOR INDIVIDUAL STUDENTS

Student	Category						Total
	8	8q	9	9c	9q	9e	
11	20	1	14	0	4	0	39
12	9	0	3	0	0	0	12
13	36	1	64	10	12	16	139
14	14	0	2	1	1	1	19
15	31	2	5	0	9	0	47
16	7	2	5	0	2	0	16
21	22	0	15	1	2	0	40
22	10	3	1	0	2	2	18
23	16	1	3	0	1	0	21
24	9	4	38	15	7	3	76
25	22	1	6	1	2	1	33
26	19	0	14	0	4	1	38
31	17	0	9	2	2	0	30
33	21	1	8	0	3	0	33
34	19	1	17	6	7	2	52
35	12	0	13	6	2	1	34
36	17	2	0	3	1	1	24
41	36	0	7	5	3	2	53
42	12	0	5	5	0	0	22
43	8	0	3	0	0	0	11
44	10	0	2	1	2	2	17
45	25	1	17	9	4	1	57
46	25	0	3	0	1	1	30
53	40	0	19	3	5	3	70
54	13	0	3	0	1	0	17
55	7	0	8	2	1	1	19
64	19	0	1	1	4	1	26
Total	496	20	285	71	82	39	993

useful when conducting teacher-student interviews. By identifying the nature and extent of students' actual participation, the teacher could also use the data to develop instructional strategies which might produce more equal learning opportunities for all students.

### *Discussion*

The results of the study would suggest that the Preliminary L2 System can provide useful in-depth information about the nature and extent of teacher-student dyadic interaction in a second language classroom and warrants further investigation. The identification of individual student verbalization revealed that important instructional relationships between teacher strategy and the resulting student verbal participation may be identified. Grouping on selected variables can illuminate some of the differential effects of teacher instructional strategy and reporting individual data can provide a microscopic view of dyadic interaction.

Several implications for teaching and learning second languages may be derived from the reported results. The observational system provides the teacher with explicit information about the way in which he handles such pedagogical tactics as soliciting and reinforcing student response. The teacher also receives detailed feedback about the verbal interaction patterns of individuals and groups of students. By becoming aware of classroom verbal interaction patterns, a teacher may be able to better control verbal behavior in ways which concur with his stated instructional goals. The results of the study suggest that it is in fact the teacher who controls the learning experiences of his students to a marked extent.

Nevertheless, inadequacies in descriptive power exist in this system. It does not specify the cognitive level of verbalization. Neither is actual content examined in detail. Classroom management procedures probably account for some proportion of interaction and should be explored as well. If these variables were analyzed, greater specificity in coding teacher verbalization would probably also be necessary. Refining and improving the system to discriminate among content, cognitive, and procedural variables may provide even more detailed information about classroom verbal interaction in second language instruction than is possible at present.

In future verbal interaction studies, additional information about the students might also prove profitable. Achievement may not be the only variable related to verbal interaction. Student aptitude and attitude may also be factors. A testing instrument reflecting actual classroom instruction, i.e., an oral production test covering the material learned in the lesson, might present a different perspective on achievement differences. The use of an externally-prepared achievement measure might provide for a sampling of objectives which may differ from those of the teacher.

The contribution of the Preliminary L2 System lies in its ability to provide detailed information about teacher-student dyadic verbal interaction patterns. The refinement of the system to include some of the variables mentioned above is presently under study. A research design which controls differences with respect to student variables in a more stringent manner is also being explored.

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## Sex and Culture Differences in Life Problems and Interests of Adolescents

*A large sample of Indian secondary school students was administered an interest scale based on Symonds (1936). Comparing the results with a large sample of Canadian adolescent opinion on needs and interests, males were found to be similar, while female opinion differed in the two cultures. (Professor Chaudhari is a Lecturer in the Department of Education, University of Indore, India.)*

The period of adolescence has fascinated people of all ages. Even Aristotle turned aside his philosophical and ethical speculations to make a study of the adolescent. Interest in the study of adolescents has not declined. It is usually said that education must concern itself with the interests and problems of the learners and not with the interests of a theoretical adult society. Symonds (1936a) was perhaps the first to draw the attention of the educational researchers to the life concerns of adolescents by initiating a study on the relative importance of various problems and interests of a sample of urban adolescents in the western United States. Some 1,641 junior and senior high school students co-operated in ranking fifteen items as problems and re-ranking them as interests. This study has been replicated by Harris (1959) and Kaczkowski (1962) in urban and rural areas of the United States. More recently, Chabassol and Thomas (1969) undertook a study of problems and interests of Canadian adolescents studying in grades 8 through 11 in junior-senior secondary schools in an urban area in British Columbia. The home backgrounds of these adolescents was lower middle class. Mean age of the students was approximately 14.5 years, with a range from 13 to 16 years for grades 8 and 11, respectively.

The present study was motivated by Symonds' hypothesis: "... change the social and economic structure of society and you immediately change the relative emphasis of these problems and interests ..." Because of the

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(Professor Chaudhari is a Lecturer in the Department of Education, University of Indore, India.)



social and economic changes taking place world over with the passage of time, one would expect a relative change in the emphasis or importance that adolescents attach to these problems and interests in different countries. Such studies, as cited above, have been replicated from time to time to ascertain whether the changes in emphasis appear as predicted.

This study is an attempt to explore the problems and interests of Indian adolescents. What phases of current living do adolescents find most interesting? What phases of current living do adolescents find most serious, most challenging, and most important? Were some of the questions answered through this study? Specifically, this study attempts to secure answers to the following questions:

1. What are the problems and interests of Indian male and female adolescents?
2. What is the extent of correspondence between the rankings of problems by Indian males and females?
3. What is the extent of agreement between the rankings of interests by Indian males and females?
4. What is the extent of agreement between the ranking of problems by Indian and Canadian males?
5. What is the extent of agreement between the ranking of problems by Indian and Canadian females?
6. What is the extent of agreement between the rankings of interests by Indian and Canadian males?
7. What is the extent of agreement between the rankings of interests by Indian and Canadian families?

### Method

930 students in grades 9 through 11 in the Higher Secondary Schools of Indore city (Madhya Pradesh, India) form the sample of this study. In India the Higher Secondary Schools have classes IX through XI. For this study the students were drawn from the government Higher Secondary Schools. These schools are common schools and admissions in them are open to all sections of the society. The social background of the students was middle class. Mean age of the sample was approximately 15.6 years, with a range from 14.5 to 17 years for grades 9 and 11 respectively. Students of grade 8 were not included in the sample. The breakdown of the population is shown in Table 1.

TABLE 1  
GRADEWISE DISTRIBUTION OF MALE AND FEMALE ADOLESCENTS

Grade	N (Males)	N (Females)
Nine	145	130
Ten		
Ten	175	160
Eleven	165	155
Total	485	445

A Hindi version of the instrument devised by Symonds (1936) was used in this study. This instrument contains 15 major areas of life concerns of adolescents. He had selected the issues from young people's own discussions and phrased the issues in terms used by young people themselves. The students of this sample were asked first to consider the items as personal problems and then to rank them in order reflecting their own experience with the issues as personal problems. The students then were asked to re-rank the same items in order of interests, considering the 15 areas as things they would like to read about and discuss or hear discussed. Students were given as much time as was needed in order to complete the instrument to their satisfaction.

### *Results and Discussion*

The findings pertaining to problems and interests of Indian males and females are presented in Table 2. It is evident that most of the choices are similar although two items, daily schedule and civic interest, hold the same position in both columns of rank. Money is the biggest problem for both sexes and recreation is close behind. Study habits is also on both lists. Some differences in ranking by males and females are noted. As expected, personal attractiveness is considered to be the most important problem by girls. Similarly, sex adjustment, manner and courtesy, and mental hygiene are given a higher ranking by females than by males. This suggests the greater concern girls show for sex adjustment, courtesy and mental worries (fears, inhibitions, compulsions, insecurity and fantasies). This may point to the presence of greater tension in girls because of more restraints and taboos clamped upon them than upon males in Indian society. Philosophy of life (personal values, ambitions, ideals and religion) appears to be of more importance for boys than for girls. It is interesting to note that neither sex sees daily schedule and civic interest as problems. This probably reveals the lack of concern for daily schedule and civic duties in the Indian adolescents.

In order to determine the extent of agreement between the ranking of problems by males and females, a Spearman "rho" was calculated. It was found to be .83, with significance at the .01 level.

In Table 2, the ranking of interests by Indian males and females is presented. The ranks are almost similar. Interest in recreation, sex adjustment, health and personal qualities are high on both lists. Of little interest to either sex are safety, mental hygiene, daily schedule, civic interest and philosophy of life. Two interesting reversals of position are found; whereas money is placed in second place by boys, it is ranked seventh by girls. For personal attractiveness, these ranks are reversed. Spearman's "rho" for these rankings was found to be .82, with significance at .01 level.

There is considerable agreement between the rankings of problems and interests, but some interesting inconsistencies are also noted. For instance, neither sex ranks sex adjustment as a major problem, but both list it quite high in terms of interest. Personal and moral qualities is, to some extent, similarly treated. This probably suggests that students in higher secondary grades may not see sex adjustments (which includes love, petting, courtship and marriage) as being a major problem, but they might well



TABLE 2  
RANKING OF PROBLEMS AND INTERESTS BY INDIAN MALES AND FEMALES

Item	Problems			Interests		
	Ranking		Spearman's rho	Ranking		Spearman's rho
	Male	Female		Male	Female	
Health	4	5		4	6.5	
Sex Adjustment	8.5	6		5	4.5	
Safety	6	7.5		13.5	12	
Money	1	2		2	6.5	
Mental Hygiene	13.5	12.5	.83*	13.5	11	
Study Habits	3	4		3	3	
Recreation	2	3		1	2	.82*
Personal and moral qualities	7	9		6	4.5	
Home and family relationships	5	7.5		9	8	
Manner and Courtesy	12	10		10	9	
Personal attractiveness	8.5	1		7	1	
Daily schedule	11	11		11.5	14	
Civic interest	15	15		15	15	
Getting along with people	10	12.5		8	10	
Philosophy of life	13.5	14		11.5	13	

\* Significant at .01 level

want to read about it or hear it discussed. Both boys and girls list money, recreation, study habits and health as their problems of considerable importance. Both sexes list safety as an important problem, but both place it well toward the bottom of the list of interests. Home and family relationship is accorded somewhat similar treatment. Money is a problem of first order for both sexes but it gets a lower rank on the list of interests. For girls, money is an important problem but not so much a matter of interest. There is a close agreement between the rankings of problems and interests so far as personal attractiveness is concerned. It is a matter of first problem and first interest for the girls. The remainder of the items are placed in relatively the same position.

*Problems of Indian and Canadian Males*

The ranking of problems by Indian and Canadian males as shown in Table 3 demonstrates some important similarities and differences. Money and study habits are high on both lists. Neither Indian nor Canadian males regard manners and courtesy, civic interest, sex adjustment and getting along with people as their important problems. Canadian males showed some concern for philosophy of life, but their Indian counterparts did not. Three interesting reversals of positions are also found. Whereas recreation is placed in second place by Indian males, it is ranked fifteenth by Canadian males. For mental hygiene and philosophy of life, these ranks are also reversed. Health, home and family relationships, and safety are problems for Indian males but not for their Canadian counterparts. Spearman's "rho" for this was found to be .14, with no significance.

*Problems of Indian and Canadian Females*

For the females, the data is similar to that of males with the problems of money, personal attractiveness and health high on both lists. Of little

TABLE 3  
RANKING OF PROBLEMS BY INDIAN ( $M_I$ ) AND CANADIAN ( $M_C$ ) MALES

Item	Ranking		Spearman's rho
	$M_I$	$M_C^a$	
Health	4	8.5	.14*
Sex adjustment	8.5	7	
Safety	6	12	
Money	1	1.5	
Mental hygiene	13.5	3	
Study habits	3	1.5	
Recreation	2	15	
Personal and moral qualities	7	4	
Home and family relationship	5	8.5	
Manners and courtesy	12	14	
Personal attractiveness	8.5	6	
Daily schedule	11	11	
Civic interest	15	10	
Getting along with people	10	13	
Philosophy of life	13.5	5	

\* Not significant

<sup>a</sup> Taken from Chabassol (1969)

concern to the females of both countries are the problems of civic interest, daily schedule, manner and courtesy, getting along with people and philosophy of life. Two important contrasts of position were noted. While mental hygiene is placed in second place by Canadian girls, it is ranked twelfth by Indian girls. Similarly, recreation is placed third by Indian girls and fifteenth by Canadian girls. This probably indicates that recreation is a problem of great concern to Indian females but mental hygiene is not, maybe because of the lack of awareness of this area of life concern. Spearman's "rho" for Table 4 is .37, with no significance at .01 level.

TABLE 4  
RANKING OF PROBLEMS BY INDIAN ( $F_I$ ) AND CANADIAN ( $F_C$ ) FEMALES

Item	Ranking		Spearman's rho
	$F_I$	$F_C^a$	
Health	5	7	.37*
Sex adjustment	6	8	
Safety	7.5	14	
Money	2	1	
Mental hygiene	12.5	2	
Study habits	4	4	
Recreation	3	15	
Personal and moral qualities	9	6	
Manner and courtesy	10	12	
Personal attractiveness	1	3	
Daily schedule	11	13	
Civic interest	15	11	
Getting along with people	12.5	10	
Philosophy of life	14	9	

\* Not significant at .05 level.

<sup>a</sup> Taken from Chabassol et al (1969)



*Interests of Indian and Canadian Males*

With respect to interests, Indian and Canadian male adolescents are equally interested in health and recreation. Recreation, money, study habits, health and sex adjustment are high on both lists. Of little interest to males of both countries are civic interest, daily schedule, safety, manner and courtesy, and philosophy of life.

Spearman's "rho" for male interest data was found to be .72, with significance at the .01 level. This suggests that the interests of male adolescents in India and Canada are very much similar.

TABLE 5  
RANKING OF INTERESTS BY INDIAN ( $M_I$ ) AND CANADIAN ( $M_C$ ) MALES

Items	Ranking		Spearman's rho
	$M_I$	$M_C^a$	
Health	4	4	.72*
Sex adjustment	5	2	
Safety	13.5	11	
Money	2	3	
Mental hygiene	13.5	9	
Study habits	3	2	
Recreation	1	1	
Personal and moral qualities	6	7	
Home and family relationship	9	8	
Manner and courtesy	10	13	
Personal attractiveness	7	6	
Daily schedule	11.5	15	
Civic interest	15	14	
Getting along with people	8	5	
Philosophy of life	11.5	10	

\* Significant at .01 level

<sup>a</sup> Taken from Chabassol et al (1969)

*Interests of Indian and Canadian Females*

A study of the interest data shows that the adolescent females of both countries are equally interested in the area of personal attractiveness. Reversal of interest has been found so far as the area of study habits is concerned. The Indian female adolescents are much more interested in the study habits than are their Canadian counterparts. The majority of the remaining ranks are very similar. Personal attractiveness, sex adjustment, recreation and health are high on both lists. Daily schedule, civic interest, safety and philosophy of life are of little interest to females of both countries. The Canadian females are more interested in getting along with people than are their Indian counterparts.

*Conclusion*

From the foregoing discussion it can be concluded that money and study habits are the problems of common concern to Indian and Canadian males, whereas personal attractiveness, money and study habits are of concern to Indian and Canadian females. Unlike Indian males, Canadian

TABLE 6  
RANKING OF INTERESTS BY INDIAN (F<sub>I</sub>) AND CANADIAN (F<sub>C</sub>) FEMALES

Items	Ranking		Spearman's rho
	F <sub>I</sub>	F <sub>C</sub> <sup>a</sup>	
Health	6.5	3.5	.67*
Sex adjustment	4.5	2	
Safety	12	12.5	
Money	6.5	5	
Mental hygiene	11	8.5	
Study habits	3	12.5	
Recreation	2	6	
Personal and moral qualities	4.5	8.5	
Home and family relationship	8	7	
Manner and courtesy	9	11	
Personal attractiveness	1	1	
Daily schedule	14	15	
Civic interest	15	14	
Getting along with people	10	3.5	
Philosophy of life	13	10	

\* Significant at .01 level

<sup>a</sup> Taken from Chabassol et al (1969)

males have listed mental hygiene, personal and moral qualities, and philosophy of life as their problems of great concern, whereas recreation is no problem for them. Money remains the first problem for males of both countries. Money is also the first problem for Canadian females but it is a number two problem for their Indian counterparts. Study habits ranks as the problem of equal importance for Indian and Canadian females. Personal attractiveness is the first concern of Indian females whereas it has been ranked third by Canadian females. Recreation is a problem for Indian females, unlike their Canadian counterparts. Similarly, mental hygiene is a problem for Canadian girls, unlike their Indian counterparts.

There were dissimilarities in the ranking of interests by Indian and Canadian female adolescents, but the interests of male adolescents of both countries were found to be quite similar. Recreation, money, study habits, health and sex adjustment are the common areas of considerable interest to them. Except for the two contrasts in the ranks for study habits and getting along with people, the rest of the interest were, by and large, similar in the female adolescents of India and Canada. Personal attractiveness was the most important area of identical interest. Indian females have shown more interest in recreation and study habits than have their Canadian counterparts, whereas Canadian female adolescents were found to be more interested in sex adjustment, getting along with people, health and money than were their Indian counterparts. Recreation was the matter of highest interest for males and personal attractiveness for females in both countries. Males of both countries have shown more interest in money than have females. Sex is no problem for them, but males and females of both countries have more or less indicated sex adjustment as the topic about which they would like to read.

Lack of concern with sex is the most difficult to understand. According to Symonds (1936b) the immediate interpretation is that boys and girls are



untruthful here and hesitate to display concern or interest in sex because of fear that they may be criticized. There is a general belief that adolescents tend to conceal the truth with regard to this area. They make subconscious efforts to keep us from knowing about this problem. Sex enters their lives spontaneously and naturally, probably in large part without the accompaniment of verbal formulations, and hence is really no problem. The sex problems of young people are the problems of their parents and elders, not of young people themselves.

This study supports the conclusion by Chabassol and Thomas (1969) and by Coleman (1961) that for males, money, and for females, personal attractiveness have always been found to be topics of interest and importance. Coleman (1970) in his studies on adolescents, found that superficial, external attributes of clothes and good looks pervade the atmosphere of adolescent cultures to the extent that girls come to feel that this is the only basis or the most important basis on which to excel. It is here that the flowering sex drive receives its open acknowledgement. Yet, he further commented, in none of the roles in adult life that most girls will occupy are physical beauty, an enticing manner, and nice clothes as important for performing successfully as they are in high school (adolescence).

The student of adolescent behaviour will not be surprised at the significance of money as a problem, high interest in personal attractiveness and considerable concern over study habits. Even at adolescence, the economic problem is both the boy's and girl's greatest concern. The problem of economic independence and economic security begins to loom as a major problem to boys. At this age, boys begin to realize that they are expected to be providers. Is this a mandate to the school to place primary emphasis on the vocational side of life, on preparing youth for earning a livelihood? In these days especially, when young people see unemployment on every side and when the tragedy of the past generation may be the tragedy of an older brother in their own home, gaining vocational competence early becomes a major concern. The discussion of the wise handling and spending of money might well be included in the secondary school curriculum.

Boys and girls at this age are strongly possessed with the urge to succeed and hence they attach great importance to effectiveness in study. Success in school is the key to advantages that come later. It is the "open sesame" to college, to vocational success, and even to economic and cultural position as seen by the adolescent. Here then is a mandate to make the secondary curriculum a living reality and not "dried leaves of the past."

The author acknowledges his gratefulness to Dr. David J. Chabassol, University of Victoria, Canada, for critically reading an earlier draft of this paper and for permitting the use of his data for cross-culture comparison.

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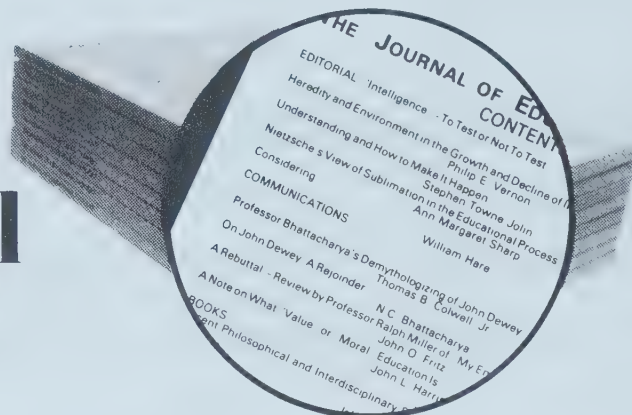
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FACULTY OF EDUCATION  
*The University of Alberta*





A. K. GRIFFITHS

and

R. K. CROCKER

*Memorial University of Newfoundland*

## Achievement in Individualized and Conventional Chemistry Courses and its Interactions with Selected Academic and Personality Variables

*The experiment compared the achievement of two groups of students enrolled in a one semester introductory chemistry course. The experimental group was treated by individualized study whereas the control group received a normal teacher directed presentation. An attempt was made to identify student characteristics which might lead to greater achievement for an individualized treatment. Analysis was by multiple linear regression, incorporating the use of several covariates. In spite of large gains for the experimental group in unadjusted means, the treatment main effect was marginally nonsignificant after adjustment for the covariates. No interaction was observed between treatment and general ability, mathematical ability, or the personality trait extraversion-introversion. There was a strong suggestion that those students with a tendency towards neuroticism benefited from the experimental treatment. Mr. Griffiths is Associate Professor of Education and Dr. Crocker is Director of the Institute for Educational Research and Development at Memorial University.)*

The last few years have seen a resurgence of interest in the provision of instructional patterns which attempt to cater more to individual differences among students at all levels. The resultant literature has been pervasive and persuasive. The Keller plan has seen widespread application, particularly in psychology but also in the sciences (Sherman, 1974). In science education several other informative long term studies have been described (Postlethwaite, 1969; DeRose, 1970; Becht, 1973). Yet it appears that much of the literature may be as misleading as it is appealing. It is legitimate to attempt to determine the success, both affective and cognitive, of an experimental treatment relative to that which it may replace. It is certainly

appropriate to describe such findings so that they may be related to the general field. However, three features of the literature in this case are disturbing.

First, the vast majority of reports are anecdotal, subjective, or lacking in statistical rigour or experimental design. Second, this is compounded by the lack of a common, useful operational definition of individualized instruction, weakening the generalizability of conclusions. Paradoxically, greater precision would appear to be incongruent with the ideal of individualization. Finally, very few attempts have been made to identify student characteristics which may interact with particular variants of individualized instruction. The investigation of such trait-treatment interactions has recently come to be recognized as potentially the most significant aspect of experimental studies in instruction.

This study attempts to accommodate these problems. Self pacing, using mainly written materials, was the variant of individualized instruction used. An attempt was made to determine the overall success of the treatment, relative to a control, and to incorporate sound experimental and statistical control. However, on the assumption that in the hands of some teachers, some students will attain more in some parts of the curriculum when it is individualized, the major concern was to identify interactions between selected student characteristics and achievement. There are some indications that personality may be one such factor (Bigelow, 1968; Szabo & Feldhusen, 1971).

### *Hypotheses*

The first hypothesis under investigation was that the individualized treatment (i.e., mainly self pacing) would yield higher mean scores on the criterion measures than would the control treatment. The second hypothesis related to the possibility that variables other than treatment would influence performance hence producing interactions between these variables and treatment. The variables investigated for possible interactions were general ability, mathematical ability, whether or not the subjects had studied chemistry in high school, and the two personality factors extraversion-introversion and neuroticism-stability as measured by the Eysenck Personality Inventory. (Eysenck & Eysenck, 1963). The following null hypotheses were therefore tested:

- Hypothesis 1: There will be no significant differences between experimental and control groups in mean scores on criterion examinations.
- Hypothesis 2: There will be no significant interaction between treatments and the following variables:
- 2.1 previous chemistry
  - 2.2 general ability
  - 2.3 mathematical ability
  - 2.4 extraversion
  - 2.5 neuroticism

### *Procedures*

The experiment involved students enrolled in a first year course at Memorial University of Newfoundland. Despite the university setting, first year classes at Memorial greatly resemble those in the last year of high



school elsewhere. The first year faculty are generally former school-teachers, class size and course content are typical of most senior high schools, and the students enter after completion of grade eleven. Moreover the particular course chosen for study was based on the first six chapters of the most recent version of Chem Study (Parry, et al., 1970) and catered to students who had either no previous chemistry or a weak background in the subject. Students with a high grade eleven average were exempted. The nature of the course is that of a non-credit introductory course, and hence it is called a "Foundation" course. Hence the sample might best be considered to represent a population consisting of average students enrolled in a high school chemistry course. The sample consisted of an experimental class ( $N = 30$ ) and a control class ( $N = 31$ ) drawn randomly from the approximately two hundred registrants for the course.

Criterion measures consisted of a one-hour examination taken after eight weeks and a two-hour final examination taken at the end of the twelve week course. Each included multiple choice and free response questions, and was approved for content and construct validity by all five instructors teaching the course. The only other instrument administered during the study was the Eysenck Personality Inventory which contains 57 yes-no items and was administered several weeks after the beginning of the course. Grade eleven average score over seven subjects was taken as a measure of general ability. Grade eleven algebra score was used as a measure of mathematical ability.

The control group was treated entirely by normal large group lecture presentation, and the instructor was available for consultation if required. For the experimental group a major printed learning guide was developed to accompany the text, in lieu of teacher presentation. Members of this group were required to attend the classroom or the adjacent resource room during scheduled class times, but were encouraged to work individually or in small groups as they desired, and to proceed at their own pace. The instructor was available at this time and was generally involved in individual or small group consultations. He was also available at other times upon request. Each group used the same classroom, had the use of a small resource room containing audiovisual and printed aids, and performed the same laboratory activities. Any member of the experimental group was able to take a chapter test at any time, upon request. At least three distinct, but equivalent, tests were available for each chapter. Progress to the next chapter was possible only after consultation with the instructor, and remedial work was suggested for those objectives which had been missed. The members of the experimental group were encouraged to progress through the course as quickly as they wished and to take the examinations ahead of the control class if they wished. As will be discussed later, the latter part of this option was not taken.

### *Results*

Table 1 shows the overall means and standard deviations of the variables. Table 2 gives the intercorrelations among the various continuous variables. The relatively high correlation of grade eleven algebra and grade eleven average with the criterion measures would suggest that these

TABLE 1  
MEANS AND STANDARD DEVIATIONS OF VARIABLES (N = 60)

Variable	Maximum	Experimental		Control	
		Mean	S.D.	Mean	S.D.
Grade XI Average	100	68.7	4.9	67.4	4.2
Grade XI Algebra	100	67.0	6.8	67.7	11.2
Mid-Semester	100	69.1	14.9	59.5	17.4
Final Exam	100	56.0	14.0	51.7	15.5
Extraversion	24	14.5	3.6	14.1	3.4
Neuroticism	24	12.3	4.6	14.4	4.4

TABLE 2  
INTERCORRELATIONS AMONG ALL CONTINUOUS VARIABLES FOR  
COMBINED GROUPS (N = 60)

Grade XI Average	1.00	.51**	.43**	.37**	-.04	.01
Grade XI Algebra		1.00	.39**	.34**	-.09	.04
Mid-Semester			1.00	.70**	-.13	-.12
Final Exam				1.00	-.09	-.13
Extraversion					1.00	-.02
Neuroticism						1.00

\* Significant at .05 level.  
\*\* Significant at .01 level

variables might exert a significant influence in a regression equation designed to predict criterion scores. On the other hand, there is little to suggest that either of the personality variables would, in themselves, contribute to a regression equation. The essentially zero correlation between the two personality variables is consistent with previous findings concerning the orthogonality of the two scales (Eysenck & Eysenck, 1963). Finally, the high correlation between the mid-semester and final examinations can be interpreted as evidence of the reliability of these measures.

Each hypothesis was tested by developing and comparing appropriate multiple linear regression models using, in turn, mid-semester and final examinations as criterion variables. Successive pairs of regression equations were compared, using the *F* ratio, in order to examine the effect of treatment and of the various possible interactions. In each regression model, grade eleven average, grade eleven algebra, and previous chemistry were used as covariates whenever they were not directly under test. The analysis was thus equivalent to a series of two way analyses of covariance using treatment as one factor, each of the variables listed in hypothesis 2, in turn, as the second factor, and the remaining variables as covariates in each case.

The regression analysis summaries are shown in Tables 3 and 4. In the regression analysis, hypothesis 1 was, in effect, tested simultaneously with each of the sections of hypothesis 2. Except for differences in the values of

$R^2$ , due to missing data, the use of different covariates and the importance of the interactions, the treatment effect was the same in all cases. It is noted that the design used also permitted tests for the main effects of previous chemistry, general ability, mathematical ability, extraversion and neuroticism. Although none of the research hypotheses related to these effects, some of these results are indirectly of interest.

TABLE 3  
SUMMARY OF REGRESSION ANALYSIS, MID-SEMESTER

Restriction on Model	$R^2$	df	$\Delta R^2$	F	p
None	.355				
Treatment-Chemistry Interaction	.348	1/55	.007	.633	-
Treatment	.317	1/55	.031	2.63	.111
Previous Chemistry	.267	1/55	.081	6.78	.011
None	.365				
Treatment-General Ability Interaction	.352	2/51	.031	0.541	-
Treatment	.301	1/53	.064	4.14	.047
General Ability	.272	2/53	.080	3.25	.047
None	.394				
Treatment-Math Interaction	.363	2/51	.031	1.30	.281
Treatment	.333	1/53	.030	2.48	.121
Math Ability	.333	2/53	.030	2.48	.292
None	.502				
Treatment-Extraversion Interaction	.490	2/32	.012	.389	-
Extraversion	.399	2/34	.091	3.02	.062
None	.509				
Treatment-Neuroticism Interaction	.433	2/32	.076	2.49	.099
Neuroticism	.407	2/34	.026	.789	-

In spite of apparently wide differences in means between the experimental and control groups, especially on the mid-semester exam, null hypothesis 1 was not rejected. Similarly it should be noted that, with the exception of marginally nonsignificant interactions between treatment and previous chemistry for the final examination, and between treatment and neuroticism for both criterion measures, the null hypothesis could not be rejected for the various interaction effects. In the latter case, however, the consistency of the results over the two criterion measures suggests that the probability of the result being due to chance is, in fact, substantially less than that indicated by the separate probabilities. As for the main effects of the blocking variables, the results show, for the mid-semester exam, that previous chemistry and general ability exerted a significant effect on performance. Although the trait extraversion-introversion also appeared to affect performance, the result was not stable over a replication of the analysis with a second sample, and must therefore be treated with skepticism.



TABLE 4  
SUMMARY OF REGRESSION ANALYSIS, FINAL EXAMINATION

Restriction on Model	R <sup>2</sup>	df	ΔR <sup>2</sup>	F	p
None	.270				
Treatment-Chemistry Interaction	.219	1/54	.051	3.78	.057
Treatment	.216	1/55	.003	.197	-
Previous Chemistry	.173	1/55	.046	3.28	.075
None	.228				
Treatment-General Ability Interaction	.206	2/51	.022	.746	-
Treatment	.196	1/53	.032	.648	-
General Ability	.158	2/53	.048	1.58	.215
None	.279				
Treatment-Math Interaction	.267	2/51	.012	.438	-
Treatment	.265	1/53	.014	.117	-
Math Ability	.206	2/53	.061	2.19	.121
None	.494				
Treatment-Extraversion Interaction	.482	2/32	.012	.370	-
Extraversion	.430	2/34	.052	1.72	.193
None	.328				
Treatment-Neuroticism Interaction	.233	2/32	.095	2.26	.121
Neuroticism	.216	2/34	.017	0.381	-

The relatively large standard deviations for the mid-semester and final examinations suggest that quite large between-group differences could be statistically nonsignificant because of the wide within-group variation. It was therefore decided that a graphical analysis of some of the marginally nonsignificant results might be valuable, especially in suggesting areas for further study. Figures 1 and 2 show the interaction between treatment and neuroticism and between treatment and previous chemistry. It is stressed

FIGURE 1  
TREATMENT-PREVIOUS CHEMISTRY INTERACTION

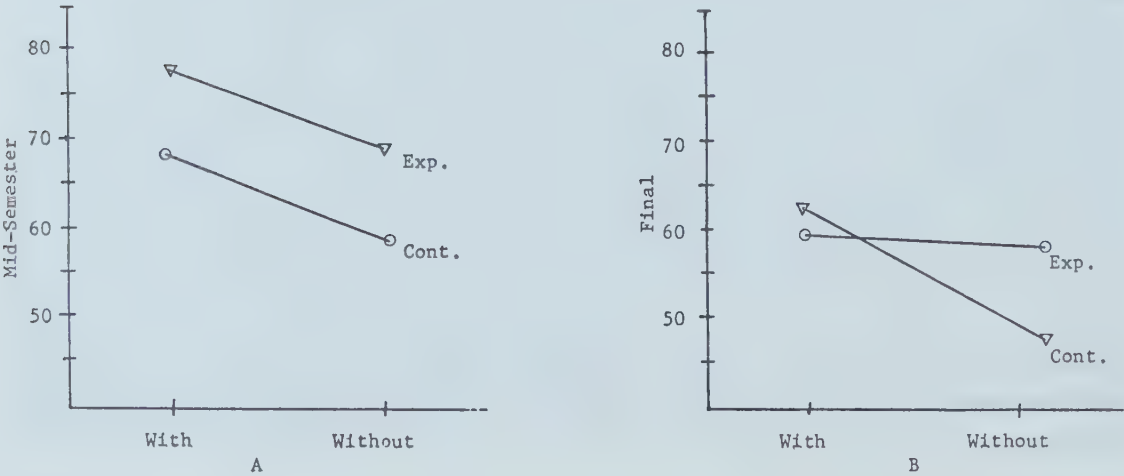
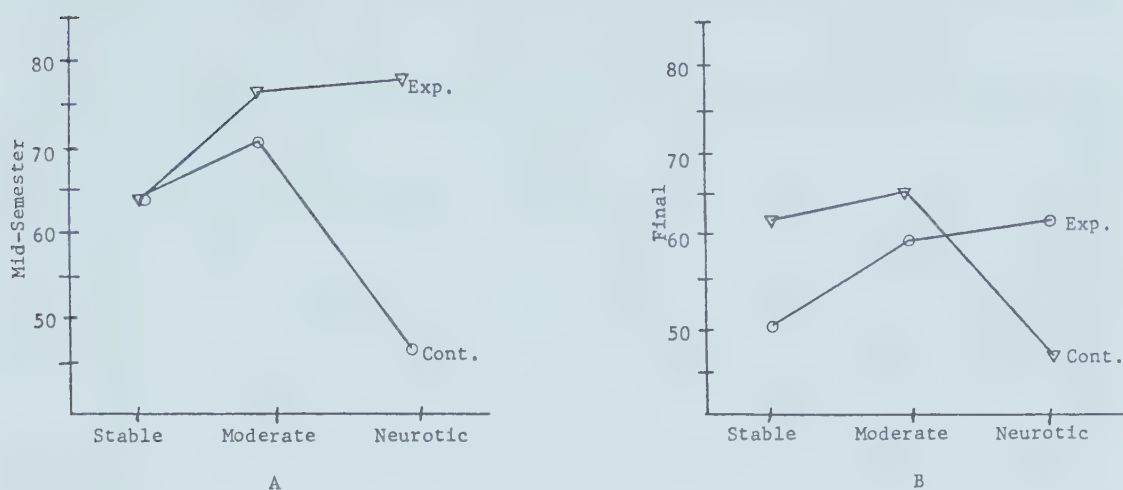


FIGURE 2  
TREATMENT-NEUROTICISM INTERACTION



that the interactions illustrated must be interpreted in the context of the regression analysis rather than by visual inspection alone.

### Discussion

In terms of statistical significance the experimental treatment could not be claimed to be more beneficial than the control. As has been indicated, this may have been influenced by the abnormally large within group variances. Furthermore, after allowing for the observed interaction between previous chemistry and the experimental treatment, it appears that consistent gains approaching marginal significance might be claimed for those students without previous chemistry. This, of course, would be the case in most high schools using Chem Study. It might also be argued that the previous education of the students had not required substantial self-direction, and that consequent reactive effects may have influenced performance.

The attempt to identify interactions between selected factors and treatment was unsuccessful, with the possible exception of previous exposure to the subject and also neuroticism. The significant interaction between previous chemistry and treatment evidenced in the final examination is difficult to explain especially in the direction shown. Those students in the experimental group who had previous chemistry suffered a substantial relative decrease in attainment from mid-semester to final examination. One plausible explanation may lie in a change of attitude. Until a few weeks before the mid-semester examination it was apparent that these students were progressing at a much faster pace than most other students. Initially they hoped to finish the course well before the end of the semester, progress immediately to the next course, and by the end of the year regain the semester they felt they had lost by having to enrol in the Foundation course. When it became apparent that this was unlikely to succeed their work rate dropped rapidly and general attitude to the experimental treatment changed adversely. It seems very possible that this was the cause of the observed interaction.

In analysing for personality-treatment interaction it was necessary to

make several random selections, to ensure reasonably equivalent cells. The regression analysis indicated interaction between neuroticism and treatment to be marginally nonsignificant. However, the actual differences in favour of those who were high on the neuroticism scale and in the experimental group are so great as to at least suggest a profitable avenue for further research. This contention is strengthened by the consistency of the result over the two examinations. Several studies have indicated that introverts achieve more highly than extroverts, although this may be related to age (Lynn & Gordon, 1961; Amaria, Biran, & Leith, 1969). The present study was more concerned with possible interaction between trait and treatment. No interaction was observed. Further, although it might be inferred from Table 4 that the effect on achievement of the total sample was only marginally nonsignificant, a replication indicated no significant difference, although any differences consistently favoured introverts.

Neither general ability nor mathematical ability interacted significantly with treatment. It should be noted that although the range of mathematical ability was wide, the range of general ability was restricted to the lower end of the university intake. Hence the results cannot be claimed to indicate that achievement in an individualized course is necessarily unrelated to ability. Conversely the results do indicate that average students are not mitigated against by an individualized treatment.

General impressions and student comments agreed with those from other studies. The provision of fairly precise behavioral objectives was favoured. Weaker students tended to fall too far behind, unless provided with deadlines. The better students were concerned that a sequential course should be immediately available so that they could benefit from adhering to a fast pace. Hence there appeared to be a general need for an extrinsic course of motivation. As well as the advantages generally claimed for individualized instruction, others may be more specific to science. For the student who missed time or who cannot keep up or who fails to grasp an important concept, the hierarchial nature of most science courses may result in appreciable cumulative loss. Such problems are less likely in an individualized program, even if that program only allows for differential pacing. Secondly, the conceptual nature of most of the new curricula may be quite inappropriate for those not wishing to specialize in science. Individualization enables greater flexibility and allows for different interests and abilities. Nevertheless, even if highly positive gains were reported, the caution to make sure you plan your approach carefully before you jump on the individualized instruction bandwagon should be well taken. In particular it is likely that students will either expend more time on an individualized course, to the possible detriment of other courses, or will need to extend the time taken to complete the individualized course. The actual cost of producing materials may be prohibitive, especially if a heavy media emphasis is involved. In the present study extra cost was minimal. It is also likely that teachers involved will encounter increased workloads, except perhaps in large scale programs. Possibly teachers and students alike will be compensated by greater success and satisfaction, if in fact these may be assured. Perhaps the greatest contribution will come from individualized excursions from a basic core, both for able and weaker students. Our final word, then, is one of hope tempered with caution.



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## Mennonites and Hutterites in Twentieth Century Alberta Literature With Special Reference to Educational Implications

*This paper reports on an analysis of a variety of sources of literature dealing with the attitudes of Albertans toward two minority groups, Mennonites and Hutterites, from the turn of the century to the present. The format of the research was to identify, categorize and analyze literature such as personal correspondence, newspaper articles, government documents and research studies, noting specific attitude orientations for each decade. A final major concern of the paper is to note the implications of social attitudes for schooling in terms of curriculum and teacher training. (Dr. Friesen is Associate Professor in the Department of Educational Foundations, The University of Calgary.)*

Sociologists have long been aware that public attitudes toward minority groups vary depending on the community, and it may also be demonstrated that such attitudes change over time depending on circumstances. This paper reports on an investigation of public concepts of two minority groups, both of which originated in the European Reformation as protest movements against the church, and subsequently formulated basically similar dissenting doctrinal statements. Although it might be quite correct to think of Hutterites and Mennonites as religious in origin their activities and practices have stabilized through the centuries to the extent that the sociologists' delineation of them as subcultures might be more appropriate. This is because Mennonites and Hutterites have developed a special identity through use of a special language, separate system of beliefs, customs, clothing and even food habits (Palmer, 1972, p. 1). The atypical life-style pattern of these groups, particularly their preference for isolation, has been responsible for their exclusion from full participation in society, although the reason for exclusion has frequently constituted a two-way street; sometimes it has been self-imposed and at times it has taken on the form of ostracism by members of the larger society.

The object of this research was to identify, categorize and analyze

literature in Alberta dealing with Mennonites and Hutterites during the time period from their settlement in the province to the present time, noting differences and/or fluctuations in the manner of public regard for these groups. A special concern of the research has to do with the implications of teaching about Alberta minorities in today's schools. The kinds of literature investigated included a wide range of writings from personal correspondence and newspaper articles to government documents and research reports. Every effort was made over a period of nearly a year to obtain any and all relevant materials about Mennonites and Hutterites through use of library facilities at the three Alberta universities as well as public facilities, correspondence with community functionaries, field trips, and other less regularized ways of obtaining information. In all, several hundred books, articles and other pieces of information were perused, each of which was classifiable as being about Mennonites and Hutterites in Alberta specifically.

Decade periods of time were utilized as a unit measure in the analysis of materials, partially for the sake of convenience, but also, because the various decades since 1920 correspond with significant public attitude emphases and changes toward these groups. It would have been possible to treat separately the results of the analysis of these groups, but the similarities noted were sufficiently parallel so the results have been combined to some extent. Fundamental differences in public attitude toward these groups vary in each decade, and these differences are noted in the discussion.

#### *Identification of Groups*

The general nature of life-style and religious beliefs of both Mennonites and Hutterites are fairly well known to people in Alberta, at least to the extent that their religious piety provides an intriguing cultural factor. (F. H. Epp, 1974; Toews, 1975; Hostetler, 1967; and Peters, 1965). Certainly awareness of the colonizing practice of Hutterites is commonplace and in certain communities has caused some consternation among neighboring farmers regarding possible Hutterite take-over of family farms. Living in colonies, for Hutterites, is a part of their religious belief pattern and dates back to the origins of the group. It constitutes the singular cause for most public uneasiness in Alberta regarding Hutterites. When the Protestant Reformation moved into full swing in the early part of the sixteenth century, leaders such as Jacob Hutter and Menno Simons (respective leaders of Hutterites and Mennonites) defied state church regulations and directed their energies toward establishing a counter religious movement in Europe (Smith, 1957, Chap. 1, 2). Their hope was to establish a church in keeping with New Testament principles emphasizing basic beliefs held even today by both groups as well as their Anabaptist counterparts: Bibliolatry, individualism in faith, pacifism, isolation, practice of the "ban", and refraining to take the oath (Heidebrecht, 1973, pp. 12-13; *Mennonite Brethren Herald*, June 27, 1975). In spite of inevitable persecution the movement spread to the German speaking territory around Switzerland, to South Germany and ultimately to other parts of the world.

As early as 1707 some of the Swiss Mennonites decided to go to Pennsylvania, thus starting the flow of immigration that was to bring



thousands of people to the new world (Bender & Smith, 1964, p. 60). Mennonite and Hutterian immigrations to North America occurred in different time periods due to the separate activities of the two groups caused by conflict over the ideal of communal living. Although the Anabaptism movement appeared to have common generic beginnings, not all adherents were aware of what was happening to their counterparts in other parts of Europe. Mennonites and Hutterites shared a great number of common ideas originally, but the Hutterites were virtually left untouched by Menno Simon's influence because of their own leader's ideas (Horsch, 1931, p. 6). Thus, while both groups were a part of a significant religious movement their development took on some unique characteristics from the very beginning which made future activities quite distinct from one another.

The first sizable Mennonite immigration to Canada occurred in the eighteen seventies with a gradual trickle of additional people well into the early part of the twentieth century. By 1921, Alberta had accumulated 3,131 Mennonites (F. H. Epp, 1974, p. 304). Hutterites, on the other hand, came to Canada after an initial immigration to the United States in 1874, and between 1918 and 1922 established nine colonies in Manitoba and fourteen in Alberta (Peters, 1965, p. 51). The decade preceding the twenties records the first reaction of Albertans to the new arrivals and marks the starting point for this research. A most fascinating phenomenon about the coming of the Mennonites and Hutterites to Alberta pertains to the nature of strong feelings, pro and con, concerning their immigration. It was far from an unnoticed happening.

#### *The Pre-Twenties Decade: Immigration*

The years immediately after World War I represent the most negative of attitudes toward Mennonites and Hutterites in Canada highlighted by a Federal Order-in-Council passed in 1919 which read, "If there are in the United States or Europe people of any class, whether they be called Mennonites, Hutterites, or any other kind of 'ites,' we do not want them to come to Canada . . ." — John Wesley Edwards (Epp, 1974, p. 391). There are indications that public sentiment concurred with this government action, and in Alberta the secretary of a largely attended meeting was authorized to send a resolution to Premier Borden protesting against Mennonites being allowed to take up land in Alberta. The fear was that since the Mennonites had been "kicked out" of Germany, Russia and America, they were being dumped into Canada and in danger of getting better treatment than the boys who fought for Canada. The Mennonite aversion to military training was identified as the basis for not wanting them in Alberta and a reporter present at the meeting noted that "there was not throughout the whole meeting the slightest sympathy shown to the Mennonite . . ." (*The Alberta Farmer and Calgary Weekly*, Sept. 26, 1918).

The words of The Honourable A. L. Sifton, Minister of Customs should have comforted the meeting because he had earlier stated that "there is no danger of any invasion of Mennonites or any other sect coming to Canada and escaping military service" (Glenbow Clipping File, Sept. 8, 1918). But there were other kinds of considerations to Mennonite objection; World War I brought with it the side-effect of hatred of things "German" tied with the

conscientious objection position of the Mennonites and gave cause for concern. The War Time Elections Act of 1917 specifically named Mennonites, Hutterites and Doukhobours, and the Mennonites resident in Alberta did not mind giving up the vote in order to avoid hostility. A few young men from a previously established Mennonite group at Didsbury did join the army but for the most part assimilation of any kind did not occur (Palmer, 1972, p. 95).

Objection to Mennonite settlement in Alberta emanated from some unexpected quarters when leaders of the 1918 Women's Christian Temperance Union meeting at First Methodist Church in Calgary adopted resolutions supporting the Federal Government's position on the subject granting no special favors to immigrant groups. They were particularly concerned about the life style of the Mennonites in that they "build large houses inhabited by a number of families, each family living in one room, which was a very bad state of affairs" (*The Morning Albertan*, Oct. 5, 1918). Equally skeptical concerns were expressed by people responsible for education in Alberta noting that the Mennonites would be required to conduct and support public schools, use authorized textbooks, and adequately equip the schools with teachers approved by the Department of Education. All factors would be subject to the regular inspection of school inspectors (*Lethbridge Daily Herald*, Sept. 26, 1918). Finally, the Great War Veteran's Association rallied to seek to make a test case against the Mennonites intending to have them detained and interned if they would not prepare to take up arms for the country (*Lethbridge Daily Herald*, April 19, 1919). Some even went so far as to seek the deportation of those who would not voluntarily participate in the armed forces when called on to do so.

Public feeling against Mennonites was not completely adverse and some of their ongoings were quite objectively appraised by certain observers and those having dealings with them to the extent that some positive feelings were noted. Mr. R. W. Pilling, on behalf of the Pilling Land Company which sold land to immigrating Mennonites from the United States, commented on their behalf that they had obeyed all government regulations regarding schools, even having two war veterans as teachers in the colonies, and were arranging their farm matters to reap the greatest possible produce from them. He replied in a public letter to the G.W.V.A. that opposition to the Mennonites' purchase of land had made them feel they should rather have migrated to South America and, if they did in the future, the veterans could purchase the land at cost from the Mennonites. In Commons debate an occasional positive spark, such as that voiced by Mr. W. D. Euler from Waterloo North, must have encouraged the Mennonites in their quest for a home. Mr. Euler designated the Mennonites as follows:

They are considered amongst us as being of the very best citizens . . . They are the best of farmers, understanding farming well; they are clean in their living; they do not live in communities; each family lives by itself, and they have never to my knowledge raised the slightest objection to having their children attend the same schools as are attended by the other children in our county (Commons Debates, 1919).

Similarly, a teacher in a Mennonite colony and former war veteran sprang



to the defence of the Mennonites when they were charged maliciously by an Alberta M.L.A., Martin Woolf, who stated that though he "held no brief for the Mennonites the truth about them should be known as a matter of British fair play." His teaching experience had taught him that the Mennonites essentially had no objection to schooling, they were a cleanly people, and, unlike the Finlanders among whom he had taught as well, "The Mennonites do not hate the Canadians, but on the other hand, show a disposition to meet us half-way" (Glenbow Clipping File, April 4, 1919).

Although the official data of Hutterian entry into Canada occurred in 1918 a great deal of correspondence preceded their coming, and was designed to assure for the Hutterites that they would be exempt from military duty and hold related privileges. A letter from Deputy Minister James A. Smart, in Winnipeg, October 27, 1899 offered the Hutterites full freedom of religious belief, the right to establish independent schools, and no interference with their commonwealth way of life. These rights were fulfilled on the part of the government and the settlement of the Hutterites in Canada was at first virtually unnoticed by the public. One writer interprets this in terms of the fact that other European groups were also immigrating to Canada during the 1918-1922 period and each group received equal press, Hutterites included (Peters, 1965, p.51). Generally speaking, the Hutterites fared better than the Mennonites during this time period insofar as press and government treatment was concerned, possibly due to their later entry into Canada, but there is also some evidence that the two groups were not readily differentiated by those who opposed their practices. A case in point concerns the military draft phenomenon at Raymond, Alberta where references to the Hutterites and Mennonites were made interchangeably by the War Veterans who were convinced that the "Mennonites must go" (*Raymond Recorder*, April 23, 1919). In summary, the entry of these people into Canada was not without misunderstanding and opposition, and it was up to their leaders and successors to see that the people proved themselves worthy of their claims.

### *The Twenties: Settlement and Expansion*

Public sentiment toward Mennonites adopted a slightly less negative tone during this decade although Mennonite immigration reached an all time high in 1923 when more than 20,000 people left Russia to make their homes in North America. The exodus was of such large numbers that the Russian government became concerned about it to the extent of changing emigration policy to individual cases so as better to control it (Toews, 1967, p.202). The Canadian government, on the other hand, was willing to receive Mennonites because of their desirability as farmers for a pioneering country (Toews, 1975, p.152). Thus the Order-in-Council refusing emigration of Mennonites and other groups to Canada was repealed by the Liberal Government of William Lyon Mackenzie King upon the condition that: (1) the people admitted to Canada would find shelter and support; (2) they would be placed on the land, because Canada wanted only farmer immigrants; and (3) none of the immigrants would become a public charge (Heidebrecht, 1973, p.53). Although government action allowed ready immigration of Mennonites into Canada the motivation behind the changed policy was not necessarily entirely one of generosity. It was clear



that a large group of the Old Colony Mennonites of Manitoba were dissatisfied with governmental policy and were threatening to leave the country, and Premier Norris of Manitoba was particularly desirous of "replacing them with a progressive class of Mennonites from Russia" (Epp, 1962, p.105). In addition, the number of people moving to Canada from Great Britain and the United States had greatly diminished and contributed to a great need for more population in Canada. This made the scene for additional Mennonite immigration from Russia a very pleasant prospect, and numerous people took advantage of the situation until 1927 when Russian policy abruptly brought emigration to a halt. In addition, since the Canadian government permitted immigration limits to be set by the various provinces, Premier Anderson of Saskatchewan forbade further immigration despite the fact that he was pleased with Mennonite performance in that province. The Alberta government took a similar stand based on the unemployment situation in the province which was felt by Premier Brownlee to be threatened by further immigration. These actions made things quite difficult for Mennonites in Russia waiting for permission to enter Canada, and they were told that they would be sent to labour camps if the Canadian government would not allow them to immigrate (Palmer, 1972, p.98). In 1929 some Mennonites from Siberia were still trying to gain permission to enter Canada (*The Albertan*, Nov. 5, 1929).

Public sentiment toward Mennonites eased somewhat during the twenties, possibly because it was recognized that they were here to stay. The Mennonite attitude toward public schooling changed in that their children were permitted, even encouraged in some cases, to attend English schools. Mennonite elders feared the loss of religious identity through assimilation in schools but the gradual decline of German schools soon became apparent. Reporters had the habit of writing about "peculiar practices" of Mennonites, particularly their aversion to the automobile, but they were frequently praised for their farming abilities, commended for paying taxes, and admired for their family tenacity. So, while the general attitudes toward Mennonites softened somewhat during this time there were still occasional public expressions of dissatisfaction with their way of life, particularly related to land purchases or militaristic orientations. In Coaldale, Alberta, for example, a meeting of the U.F.A. was disrupted by a man who made "wild charges" against the Mennonites claiming they had purchased land too cheaply from the C.P.R., their children were educationally out of touch with the rest of the country, and some of them had been permitted to enter Canada while physically unfit to do so (*Lethbridge Daily Herald*, March 26, 1928). While his charges were calmly dealt with by those responsible for the meeting, the incident was a reminder of the fact that the Mennonites still had a public relations task ahead of them before they would experience total acceptance in Alberta.

Hutterite expansion during the twenties caused little consternation in Western Canada even though during the period immediately after 1922 all but three American colonies moved to Alberta and Manitoba. Hostile feelings arising from the land expansion question did manifest themselves later on, particularly in the early years of World War Two aided by the expressed views of certain politicians such as Premier J. E. Brownlee of Alberta who in 1931 summed up his impression of Hutterites in this manner:

We regret to have to say that these people have not proven very satisfactory immigrants. We quite admit that they are frugal, industrious and hard-working, but on the other hand they do not assimilate or mix with the other people of the province (Mann, 1974, p.24).

Earlier, the Premier along with J. R. Boyle, leader of the opposition, helped defeat a bill that would allow for the incorporation of Hutterite colonies on grounds that they would not tolerate communistic organizations in the province. Other opposition to the bill was voiced along the lines that incorporation would take away from the government the right to succession duties and other corporation taxes. In addition, one member objected that the colony in question was not applying for an "English" corporation title and therefore should not be granted one (*Lethbridge Daily Herald*, March 9, 1922).

Newspaper accounts of Hutterite life during the twenties report an occasional outburst of unhappiness with their being in Alberta even though their existence provided an easy subject matter for the curious sociologically-oriented reporter. Conclusions to two newspaper monographs written in the twenties imply that the Hutterites are an interesting and peculiar people; however, these accounts also helped to perpetuate a myth still held to by some individuals today, that the Hutterites have little to offer Alberta by way of economic advantage, local community benefit or assimilation through use of the English language or adoption of general customs.

It would hardly be accurate to suggest that during the twenties the Mennonites and Hutterites were regarded by Albertans as welcome immigrants and worthy citizens, but they faced instead a society to which they would need to prove themselves.

### *The Thirties: Depression and a Search for Identity*

The thirties in Canada meant a reduced gross national product, mass unemployment, and crop failures. It was a time in which other phenomena besides minorities received attention; it was a time of poverty. For Mennonites the decade meant a concern for repayment of immigration debts, suffering fellows in Russia, maintaining the land, and coming to grips with a permanent identity in Canada. A considerable amount of relief work was undertaken by various Mennonite groups, but the challenge of perpetuating particular Mennonite beliefs and culture did not waver. Always an educationally minded people, the Mennonites established 16 Bible schools (or Bible colleges as they are sometimes called) between the years 1929-39, six of them in Alberta. Basically designed to inculcate religious beliefs and Bible teaching in the minds of the young, these institutions also provided the churches with spiritual leadership in both ministers and church school teaching (Heidebrecht, 1973, p.55). Immigration had come to an almost complete stop in the thirties, ending the synthesizing process of Russian and Canadian Mennonites, and allowing the latter to build an indigenous identity.

Economic developments were virtually at a standstill in Alberta during the thirties, and the Mennonite farmers, like their counterparts, struggled to maintain themselves on parched prairie soil. The media, as always, regarded them as somewhat of an oddity, alternately raising questions



about the Mennonite stand on war, Mennonite schools, and their preference for isolation. In Coaldale, a Mennonite farmer was elected to the position of trustee of the local school board winning his seat with at least a fifty percent non-Mennonite vote. About forty Mennonites attended the meeting called to announce the results of the election (*Lethbridge Daily Herald*, Jan. 15, 1930). It was a case of evidence to many observers that the slow process of assimilating Mennonites to Alberta life had begun. As one writer put it, "The Mennonite group as a whole had ceased to struggle against the world, and has to a large extent even forgotten its own distinctive group character" (Dawson, 1936, p.171). This observation was undoubtedly an over-simplification because assimilation cannot normally occur unless both groups, majority and minority, are encouraged in its fostering. In the case of the Mennonites, such was not the case even though occasional positive remarks about their agricultural ability could be recorded. It is entirely questionable that the Mennonites in the thirties desired full assimilation in Alberta.

There is evidence that Hutterite expansion in Alberta was by invitation of citizenry in selected cases. Although Premier Brownlee's attitude toward them was not favourable, the Raymond municipality near Lethbridge appealed to the Alberta Government to allow further Hutterian immigration on the grounds that Hutterites were good neighbours who paid their bills and taxes, and were honest in business (Mann, 1974, p.24). Part of the reason for the invitation was because it became apparent that the Hutterites were suffering less in farming at Raymond than others in the depression and the district citizens thought they could make use of the produce of Hutterian farms (Palmer, 1972, p.42). The mayor of Raymond was joined in appealing to the Alberta government by Joseph Card, a local business man, school inspector Owen Williams, and the Board of Directors of Lethbridge Board of Trade. In the Raymond area, at least, the thirties marked a pleasant relationship between Hutterites and public, despite rapid expansion and increase of colonies in Alberta (Peters, 1965, p.54).

In the rest of the province Hutterite popularity seemed to be growing. A local newspaper revealed its stand on Hutterites by complimenting the Hutterian ability in agriculture while still labelling them as having "quaint costumes in self-contained community homes" (*Calgary Herald*, May 27, 1933). A national magazine devoted several pages to the Hutterites in a very commendatory manner mixing curiosity and esteem as may be witnessed in the observation that, "If the world at large had rebelled against the futility of war 350 years ago when the Hutterites did, might we not have a more civilized and happier civilization today?" (*Maclean's Magazine*, Mar. 15, 1931). This compliment is perhaps the finest the Hutterites have experienced in their entire Canadian life. Their farms were favoured, their energies admired, their way of life accommodated, their closed schools tolerated, and even colony expansion allowed (*Calgary Herald*, Jan. 5, 1937). Such times were not quick to return to them.

#### *The Forties: Pacifism and Another War*

Canada declared war against Germany September 10, 1939, and immediately took action to meet the commitments of such a declaration. June 21, 1940 marked the day for royal assent to the conscription



measures, and the resultant action on the part of the Mennonite community was to send a delegation to the officials of the Department of National War Services regarding the Mennonite position on the question of non-military services. After due consideration by officials, Mennonites were granted a choice of three forms of alternative service in Canada: (1) work camps in national parks or at forest experimental stations; (2) service in agriculture or industry; and (3) service in the Royal Canadian Army Medical Corps and the Canadian Dental Corps (Epp, 1962, p.329). Naturally these arrangements attracted public attention and the media made the most of it. One newspaper ran a series of articles, "Strangers in our Midst," dealing with the unique practices and beliefs of Mennonites, Hutterites and Doukhobours. Estimating that there were about 7,000 Mennonites and 5,000 Hutterites in the province, the paper viewed their existence as pacifists in Alberta as "one of the thorniest, complicated problems which a civilized community ever faced" (*Calgary Herald*, June 22, 1942). A mingled respect was obvious in descriptions of these groups, however, and they were labelled as being ethically right but, practically speaking, horribly wrong. In a world where the meek are massacred and enslaved, they still believed that the meek shall inherit the earth.

The vignettes of Mennonite treatment in Alberta during the Second World War include some shocking chapters. Although some estimate that about 50% of eligible Mennonite men joined the armed forces during the war a significant number were sent to "alternative service camps" as they were known. In 1942, forestry camps were opened in British Columbia; in 1943, there were nineteen in British Columbia, five in Alberta, two in Saskatchewan, and one in Manitoba. The Dominion Government paid \$2.50 per day per man of which amount the camper received fifty cents and the rest of which was used for maintenance (Smith, 1957, p.705).

Mennonite men who did not enter direct war service were not necessarily forgiven by public opinion when they opted for alternative service. A philosophical problem of allegiance bothered some Mennonites about participating in the war in any way, a few of them even showing sympathy for the Nazi cause at the outset of the war. Resentment by Anglo-Saxon groups about Mennonite use of German grew to the extent that the Mennonites closed their German Sunday Schools and German libraries. The Loyalist League in Pincher Creek urged that the government purchase lands held by Mennonites and resell them. In Vauxhall, two Mennonite churches were burned (Palmer, 1972, p.100).

The war effort motivated the Mennonites to make relief contributions through the accumulation of monies, clothing and canned food. The Mennonite Central Committee, started on September 27, 1920, was the agency through which 43,000 quarts of canned meat and vegetables were shipped to Europe from the brethren in Saskatchewan in 1953. In addition, 1,800 pounds of beans, 1,000 pounds of soap, and \$4,000 were sent. Total M.C.C. contributions made to the war relief in monetary funds during the years 1942-47 totalled \$252,099.81 (Epp, 1962, p.333).

Public and political conceptualizations of Mennonite life leaned heavily toward the negative side of the ledger during the war, partially induced by resentment toward original agreements made with the federal government. Occasional acknowledgements of Mennonite contributions are identifiable,

however, particularly with regard to Mennonite relief intentions. Mennonite leaders approached governmental officials in 1940 and offered to care for war refugees to Canada rather than send money for their needs to Europe. Although they felt themselves unable on conviction to participate in offensive measures, the Mennonites did offer to provide for any additional refugees the government might allow to immigrate (*Albertan*, June 12, 1940). Simultaneously, some members of parliament were debating the very agreements made by the government that allowed Mennonites to refuse to go to war (*House of Commons Debates*, 1940).

After the war, Mennonites in Canada again sought to resume immigration of their friends and relatives but were hampered, not by public feeling of governmental regulation, but by physical handicaps. Conditions in Canada forbade the arrival home of many Canadians who had gone overseas and transportation facilities were inadequate to accommodate them let alone a new flock of immigrants (Epp, 1962, p.391). Policies of the Liberal government again favoured immigration, and the public, anxious to have the economy bolstered, forgot their resentment of pacifists, and some Mennonites were again permitted to enter this country. Those who could not be accommodated because of transportation difficulties, reluctantly went to South America.

The Second World War marked the peak of public resentment against Hutterites; this was precipitated, naturally, by their pacifist stand, but other complaints were lodged as well. Hutterites were criticized on several counts. They were labelled ignorant since they believed in elementary education only, they refused to be fully assimilated, and their "undemocratic collective ways" allegedly gave them an unfair economic advantage in Alberta (Mann, 1974, p.25). Still, some reporters could not help noting positive features of Hutterites in their monographic descriptions of colony life. A quite positive sketch was circulated by one national journal concluding that although a breakaway from colony life will eventually occur, it will not be in our lifetime (*Canadian Geographical Journal*, June, 1941). A Calgary reporter was not so kind in his descriptions though he admitted to seeing fine handicrafts and effective farming methods among Hutterites. He dismissed the lack of vice, crime, poverty, and laziness in the colonies as a high price to pay for independence, personality, and individual freedom as we understand it (*Calgary Herald*, June 29, 1942).

In March, 1942 the Alberta Provincial Treasurer in the Social Credit government, Solon E. Low, was convinced that legislative action was necessary to protect the Hutterites from negative public feeling, so he introduced a bill to prohibit the sale of land to enemy aliens and Hutterites. Amendments were also passed to forbid the leasing of land to these people, and by 1944 the government revised the Land Sales Prohibition Act so that it applied to Hutterites only (Mann, 1974, p.27). The wording of the government's intent was clear in a clause which read ". . . includes Hutterites or Hutterian Brethren and Doukhobors but shall not include any church or other religious organization or congregation" (Peters, 1965, p.55). The Doukhobors were apparently added to the clause for sake of appearances, although there were few in Alberta, and the Hutterites felt put out that they were not recognized as a church. Governmental prejudice



was quite precise and well summarized by L. S. Turcotte, legal representative of the Hutterites in Alberta:

Unless the Sunnyside Colony (for example) can buy more land they will have to leave the country. If such is the wish of the people of this province then I suggest that the Act should say so. It should say that although we welcomed these people in 1918 and as late as 1934, we, the people of Alberta, have changed our minds and we now intend to drive them out of this province. (Peters, 1965, 56)

If the position of the *Lethbridge Herald* was indicative of public sentiment, the people's answer to Mr. Turcotte was that to favour the Hutterites in Alberta was to "maintain little foreign islands here in Canada." *The Calgary Herald* was even more deliberate in stating that "... we do not believe any good will come, either to Alberta or, in the long run, to the Hutterites themselves, if they are permitted to set up more and more of their islands throughout the province—islands, where all but the leaders are, in effect, imprisoned and where boys and girls (some, quite likely of talent) are refused any chance to enter the broad stream of Canadian life" (*Calgary Herald*, March 25, 1947).

A writer for the *Lethbridge Herald* on August 29, 1942 sought to clarify the situation of the Hutterites with respect to their pacifist stand, arguing that their exemption privileges were not unlike those afforded other conscientious objectors in Canada's history, Mennonites, Quakers and Tunkers. Because the Hutterites were located in Southern Alberta in significant numbers, public awareness of their wants became acute to the extent that they were categorized as having special status and not deserving of it. Promoting a unique way of life brought other attention to the Hutterites as well. Their policy that "the meek shall inherit the earth" was interpreted by one reporter as the making of a grave mistake. Criticizing the Hutterites for "taking but not giving to Canadian society", he castigated them as being a negative quantity in Canadian society, a loss. They accept, but do not give. (*Calgary Herald*, December 4, 1943). Further hostility was encountered by Hutterites when they sought to develop a new colony in northern Alberta and experienced opposition by the Canadian Legion Branch. Although governmental policy permitted limited Hutterite expansion by 1948, the land first had to be offered to veterans. However, the Legion complained that the veterans could not match prices paid by Hutterites (*Calgary Herald*, July 10, 1948). In fact when the Hutterite Act was tested in the courts in 1949 it withstood arguments against it thereby denying additional purchase by a Cardston, Alberta Colony. When it was rumoured in 1949 that some Hutterites were planning to migrate to Mexico because of the difficulties of expansion in Alberta and rejection by the U.S.A., a local paper reported that even if this were to happen the Hutterite problem would only partially be solved (*Calgary Herald*, November 9, 1948). Thus, by the end of the decade of the forties, both Mennonites and Hutterites were granted a reprieve from contrary public opinion regarding their pacifist stance only to discover, on the part of the Hutterites, that their colonizing practices were to become a target of public concern. The Mennonites, on the other hand, were allowed to bring additional numbers into the country with less opposition. By the end of the forties Canada was still a long way from being a land of "milk



and honey” for these groups at least, so far as acceptance of them was concerned.

*The Fifties: Reluctant Accommodation*

Mennonite experience in Alberta during the decade of the fifties indicated a slight trickle of immigrants from Russia amounting to 604 people from 1950-59 (Epp, 1962, p.443). These represented for the most part what has been called “hard-core” cases, people who were difficult to arrange for because of medical or political reasons. Their entrance to Canada was made primarily to the three prairie provinces as well as Ontario and British Columbia, and added up to over 12,000 people from 1947-61. Undoubtedly their immigration was so slight as not to be noticed by most residents of the communities in which they were allowed to make their homes. Not too occupied with welcoming new relatives or relief work connected with the war, Mennonites in western Canada generally found themselves coping with cultural matters, anxiously attempting to maintain their unique identity without relenting to total isolation as a means of preserving it. The use of television became a very controversial issue in the Mennonite Brethren Church, for example, and serious discussions took place at their annual conference in 1954 and again in 1958. In the earlier conference delegates were warned against making too lengthy a declaration on the subject, but such was adopted in 1958 (Toews, 1975, p.339). If the “world” was not aware of Mennonite endeavours in the 1950s the Mennonites were certainly not going to let too much outside influence alter their way of life.

Nineteen fifty-four marked the year for a school conflict in northern Alberta involving the Old Colony Mennonites who sought isolation there in the 1930s. Until 1953 they were allowed to remain separated from the rest of the community until neighbouring non-Mennonites became concerned about the condition of schools in the area and the fact that Mennonite children were not attending school. Mennonites were warned that they must deposit \$100 per family which would be refunded when they sent their children to public schools. In order to avoid this some families moved to Worsley, Alberta and to Vanderhoof, B.C. (Klassen, 1970, p.185). When public pressure was again applied to this situation in 1969, some 90 out of 580 students left with their parents for Bolivia in South America where they were assured of educational freedom. Since then about half have returned to Alberta.

Newspapers in Southern Alberta during the fifties contained many stories of Hutterites, the majority having to do with purchase of additional land and colony expansion. In addition to the Alberta cabinet Order-in-Council of 1947 which appointed a legislative committee to hold hearings regarding the Land Sales Prohibition Act, the government set up another legislative committee to study land acquisition in order to determine whether or not the provisions of the Communal Property Act “were in the best interests of the agricultural industry of Alberta” (Mann, 1974, p.29). The result was the abolition of the forty-mile limit and the establishment of a three member Communal Property Control Board which would hold public hearings regarding any application for land by a Hutterite colony. The results of these hearings would be summarized by the Board for the

cabinet who would make a final decision. A further prohibition was that no Hutterite could purchase land as an individual and then operate it communally. The surge of anti-Hutterite opinion that emerged surrounding these hearings led the government to amend the stipulation on hearings putting them on an optional rather than mandatory basis (Mann, 1974, p.30).

Public opinion regarding Hutterite expansion is at least hinted at in accounts dealing with separate incidents such as the following: the Medicine Hat Trades Council opposed Hutterite expansion (*Lethbridge Herald*, October 19, 1951); the Alberta command of the Canadian Legion asked the provincial government to restrict land sales to Hutterites (*Lethbridge Herald*, June 16, 1953); in Commons debate, Mr. D. R. Gundlock of Lethbridge argued that Alberta farmers could not compete with Hutterites who should not be allowed to expand their land holdings (*Debates of House of Commons*, 1956, p. 2953); and the Farmers' Union of Alberta argued that land sales to Hutterites near Lethbridge violated the Properties Act (*Lethbridge Herald*, December 3, 1958). In September, 1959 the Hutterite Investigation Committee under the chairmanship of C. P. Bentley recommended that some form of regulation governing acquisition of lands by Hutterites be maintained but with administrative changes, and charged that the existing educational facilities established for Hutterite colonies were unsatisfactory in regard to instruction in the responsibilities of Canadian citizenship (*Hutterite Investigation Committee Report*, September, 1959, pp. 45-46).

Although the land question occupied most newspaper space with regard to Hutterite items during the fifties, there occurred as well in print several monographic accounts of Hutterites usually casting them as somewhat peculiar but noting as well their farming contributions and solid family life. Criticisms of Hutterites pertained to their pacifism, communal life-style, and authoritative religious structure. Rumours of Hutterite migrations to Mexico received some press as did the establishment of colonies in Saskatchewan because of land sale restrictions in Alberta. The decade of the fifties demonstrate vividly the amount of public attention a minority group can attract when an issue such as land expansion is at stake. It is quite obvious that Mennonites fared better than Hutterites in the public eye because of their preference for single-family dwelling styles even though their religious convictions on war, community and simplicity are very similar to the Hutterites. The threat felt by the public is much more obvious when larger groups of people are involved in atypical behavior.

### *The Sixties: Mixing Bitter and Sweet*

The sixties were good for Canada, and Alberta particularly, and her residents enjoyed the prosperity, success and freedom the decade offered. Minorities such as the Mennonites wrestled with the ethics of the time, gradually coming to grips with the fact of their loss of identity as a rurally-oriented society and moved to the cities in greater numbers (Driedger, 1968). Urbanization for most Mennonites meant a struggle with principles of ethics, politics and socialization. The decade produced a number of academic studies of Mennonites by Mennonite scholars, each of them



probing the composition and endurance of basic Mennonite sociological status and religious principles (Doerksen, 1963; P. G. Klassen, 1958, 1970; A. J. Klassen, 1965; and Sawatsky, 1964). At the same time expansion of Mennonite population continued and the continuing increase of Mennonite homes, schools and churches in cities testified to this.

The sixties bore the marks of some fairly difficult times for Mennonites in northern Alberta pertaining to the school question. As a compromise to Mennonite rejection of public schools, the Provincial Department of Education allowed liberal Mennonite teachers to serve in the colonies of LaCrete and Fort Vermilion, but use of the German language was restricted in at least one instance to religion only, and absolutely no reading and writing in German was allowed. The intrusion of the government into colony life continued and in 1959 a gravelled highway was built through the middle of the colony. Two years later the Tompkins Landing Ferry was installed, shortening the distance to the "outside" world by about 100 miles. Finally the leaders of the Old Colony Mennonite Church reluctantly gave way to the introduction of automobile ownership among their members (Harder, 1965). In 1965 about one hundred Mennonites from the area left for Bolivia where they had been assured of freedom to maintain their religious customs. Their major source of dissatisfaction in Alberta was voiced as being the provincial government's educational policies. As one leader put it, "In some rooms in the school they don't even pray . . . There are too many things going on at school that we are taught to keep away from" (*Albertan*, July 25, 1967).

Liberal Mennonite groups have been less reluctant to relocate when educational or religious assimilative pressures bear down on them. In fact even the record of church membership maintenance among Mennonites in the past two decades has not been too envious. In urban areas particularly, a considerable amount of passing has been practiced by middle aged and young people of Mennonite background insofar as other evangelical churches are concerned. In Lethbridge, for example, a study in 1960 showed that of 973 people of Mennonite background in the city, only 82 were associated with Mennonite churches. In the three largest Alberta cities only 613 of 8,078 were attached to a Mennonite church of some kind (Palmer, 1972, p.105). Thus while the peculiar practices of Mennonites were not of particular interest to the public (even the several community histories which were produced during the sixties in areas occupied by Mennonites failed to mention their occupation), the environs of the world attracted more than just a few Mennonites. Some were able to justify their leaving churches of Mennonite identity through finding similar religious beliefs in non-Mennonite churches, but leaders in the Mennonite church were not always as confident that the real essence of Mennonitism would be maintained through such action.

Hutterite communities in the sixties experienced a continued harassment against their purchasing additional lands in Alberta, but they were surprised on occasion to find allies in their cause when they did not expect to do so. While the public, press, and government were fundamentally still opposed to further infiltration of Hutterites into Alberta, some individuals saw this objection as an infringement of basic human rights and spoke up for the Hutterites. A few cases in point will illustrate this. In 1960 the



Alberta Legislature eased regulations on Hutterite communities, banishing the forty-mile spacing limit while retaining present provisions as to size of colonies (*Financial Post*, April 2, 1960). The Honourable L. C. Halmrast, Minister of Agriculture, argued that Hutterites deserved special provincial attention because their unique requests for governmental intervention reflected a wider concern than could be accommodated locally (*Lethbridge Herald*, Jan. 18, 1960). In Ottawa, a C.C.F. member of parliament from Burnaby-Coquitlam, B.C., Erhart Regier, accused Jack H. Horner, P.C. member of parliament for Acadia of religious discrimination, arguing that Horner was using the Hutterites as a "whipping boy" in the Commons in order to further the aims of the western farmers. Mr. Regier stated that the "capitalist neighbours" of the Hutterites were "green with envy" and had elected an MP to appeal to the government to tax the Hutterites (*Lethbridge Herald*, March 24, 1960). A similar defence was taken up by Dr. John A. Hostetler, a professor of sociology at the University of Alberta who stated that Hutterites were being persecuted in Alberta for their unique way of life when in a pluralistic society they should be allowed to co-exist with the larger society without losing their identity, and with mutual tolerance, respect and responsibility (*Lethbridge Herald*, November 30, 1960). Another professor from the University of Alberta, Norman Schules, suggested that the Hutterites had been pushed around for 450 years. Finally, a United Church minister in Calgary made headlines when he devoted a Sunday sermon on the topic that Hutterites should not be bullied out of their way of life. His action was complimented by a leader of a Hutterite colony who addressed a letter to a local newspaper in appreciation (*Calgary Herald*, January 21, 1965).

Douglas Sanders adds an insightful interpretive note when commenting on Hutterite land purchase restrictions, noting that legislative actions often serve as a means of strengthening their solidarity. Legislation has been partially self-defeating in that it has retarded the move toward friendly co-existence and cooperation and has been interpreted by Hutterites as persecution, and as monopolistic action by small farmers who usually reside in proximity to colonies (Sanders, 1964). Amid the bitter and sweet noises sounded out about Hutterites has been the more perplexing philosophical issue regarding the role of minorities in a pluralistic nation such as Canada. The extent to which such groups should be allowed to practice their unique styles of life without larger society's full approval incites disapproval from many corners, even from those who are not certain as to what a solution might be (Friesen, 1973). It seems quite possible that the nonconforming ways of the Hutterites are in some cases themselves sufficient to disturb, irritate, and arouse the prejudice of otherwise reasonable people (Peters, 1965, p. 183). When correct information is obtained the prejudicial manifestations tend to diminish somewhat, but solutions which entirely reduce tensions are not readily forthcoming. Even the Alberta government appeared to have regrets about the Communal Property Act as was later evident in the rescinding of the Act (*Financial Post*, February 13, 1965). Perhaps the sixties reflect more than anything else the phenomenon that while Hutterite expansion in Alberta was still viewed negatively, some individuals were less certain about the legality of such opposition; there were even a few who questioned the ethics of such a

position. This did not lessen the nature of feeling about Hutterites but it did retard the import of it.

*The Seventies and Multiculturalism: A Thorny Slogan*

Canadian newspapers, magazines and research literature of this decade are replete with stories about the two groups under discussion, both negative and positive, although the tone of most of the literature would indicate that the federal government's multicultural concept was not entirely misconceived. Certainly the Alberta government acted in the face of direct opposition in appealing the Communal Properties Act and people from various towns in southern Alberta flocked to the legislature to protest their action. In essence the Alberta government had no choice because the human rights legislation passed by the legislature contradicted the Communal Properties Act thereby causing an unavoidable clash between principle and practice if the policy was continued in force.

Perhaps it was because of public reaction to the earlier policy of biculturalism and bilingualism established by the federal government that new approaches to the phenomenon of cultural pluralism in Canada were sought. In any event the Government of Canada quickly made available research grants for the development of multiculturalism in the country, even sponsoring regular advertisements in various ethnic magazines. In 1974 the office of the Secretary of State of the Government of Canada made available a publishing grant to a committee in Manitoba for the production of a commemorative book honoring Mennonite culture in Canada since 1874 (G. K. Epp, 1974). Basically the people of Canada still view Mennonites as something peculiar, a social entity to be studied curiously, perhaps even admired from a distance, but not as an essential component of Canadian society. This attitude is at least partially the fault of the Mennonites who have long considered themselves "in the world but not of the world." Hence communication with non-Mennonites has been minimal, limited primarily to economic or educational situations.

One Mennonite historian explicates the position of the Mennonites in Canada as "being quiet in the land" restricting political involvement to the local community rather than attracting provincial or national attention through elections (Toews, 1975, p.345). This attitude is changing, however, and more Mennonites are interpreting the concept of cooperating with government as a legitimate social engagement rather than totally abstaining from political involvement. Separation from worldly activities is still a vital concern for most Mennonites and adherents are urged instead to participate actively in affairs of the Mennonite church and in the community. Of course the Mennonite orientation varies within groups; the Holdeman people, who are more conservative and fundamentalistically inclined religiously do not encourage political involvement although recent developments have brought a host of new factors into their lives: labour unions, social insurance, insurance, working on Sunday, loyalty oaths, educational requirements and farming associations. Presently they have even begun to serve on community farm cooperative boards and school boards (Hiebert, 1973, p.468). The Amish Mennonites of Ontario dwell communally and are even more conservative in their political outlook, refusing to allow their membership even to vote in civil elections. There is



evidence that on at least one occasion Amish people did serve in some kinds of civil office, as reeve and councillor (Gingrich, 1972, p.129). A unique twist of affairs confronted members of the Bergthaler brotherhood who migrated to Canada in 1874 in that some of them signed a complete Canadian oath of allegiance before they knew its details. Some men did serve in the army, much remembered in prayers by a somewhat frustrated group of churchmen. In 1931 a Winkler physician ran for the Manitoba Legislature and served five years with the Liberal Government; he received an almost total vote of confidence from the local church when he originally approached them with his decision to run for office (Gerbrandt, 1970, pp. 315-317).

During periods of war the Canadian public has tended to react negatively toward the Mennonite position on war and political involvement even though Mennonites have consistently stated their position as one respecting the governments of men. During the seventies when pacifism is generally accepted as an alternative to war worthy of analysis, at least by many young people, the Mennonites' stand is conceived as less peculiar than it formerly was. Multicultural acceptance of conscientious objectionist positions are also much less distasteful during a decade when Canada is not actively involved in international war. The results of these factors demonstrate that in Canada, including Alberta, Mennonites in the seventies receive virtually no public attention other than the occasional magazine write-up, usually about the novel life-styles of the Amish or Old Colony Mennonites and their lack of need for the outside world.

It is of paramount importance to most Mennonites that their own message of peace, simplicity and brotherhood be captured by their other worldly brethren. The difficulty faced by Mennonites in the seventies is that of being sensitive to sharing with non-Mennonites the message of good will they believe to be essential, and maintain at the same time the privacy and "aloofness" required to preserve their own cultural identity. As is usually sociologically true, this tightrope will not necessarily be walked consistently or effectively. There is some evidence that the identity struggle is going on among Mennonites. A survey of nearly 200,000 members of five Mennonite denominations in the United States and Canada concluded that the four hundred year old Anabaptist vision originally conceived is still an ongoing concern. Managed by two Mennonite sociologists, J. Howard Kauffman of Goshen College and Leland D. Harder of the Mennonite Biblical Seminary, the research indicated that the Anabaptist concept of religion as a way of life predominated Mennonitism as a subcultural pattern based on certain foods, clothing styles and language (*Mennonite Brethren Herald*, June 27, 1975). The extensive nature of this research indicates that the main thrust of Mennonitism will continue to be a factor in the Canadian way of life and public reactions to it will similarly occur. As the present survey of literature indicates, the nature of that reaction may vary in direction depending on the social situation of the years ahead. Educators will naturally be concerned about the input of schooling as a factor in bringing about positive and tolerant attitudes in order to help Canadians attain a high respect for pluralism as a fact of Canadian life.

The land purchase question looms high in the public mind in the



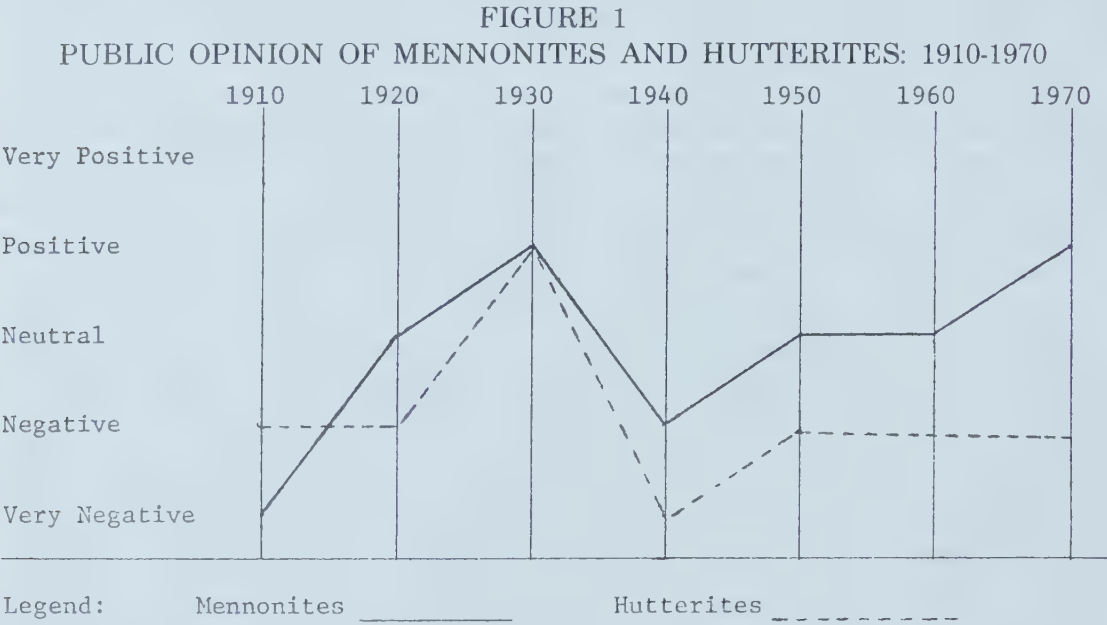
seventies as Hutterites have been given permission to add to their holdings on the grounds that anyone in Alberta should have equal rights to acquire land. Public protestations have continued and Hutterites have been accused of not supporting local community programs, crowding out other farmers, not paying their share of taxes, and placing a burden on taxpayers for insisting that their children attend colony schools. The merits of these criticisms have been the object of extensive research studies most of which have proven the criticisms incorrect or based on misinformation (*Report on Communal Property*, 1972, pp. 17-19). Hostetler points out that the fact that Hutterites *are* different is often the cause for prejudice against them even though much of what is said about them is based on false information from people who know nothing at all about them. People say about them that the Hutterites are Marxists, they do hostile acts like burning farm buildings of neighbours, they pay no taxes, the government provides them with free land, and they have a high rate of mental illness—all of which are false. But even people who know about Hutterites are sometimes filled with hostile feelings simply because Hutterites are prolific, they are efficient, and they are different (Hostetler, 1961).

One of the inroads the outer community has been able to negotiate with respect to Hutterites is education. With government requirements being that Hutterite children must be taught according to Department of Education curriculum, teachers for Hutterite schools have represented the community fairly well in their function in the colonies. If teachers are envisioned as potential changers of the Hutterite system, however, their sentiments do not lie wholly in that direction. One group of teachers has expressed the conviction that if Hutterite children were lost to the colonies through a social change kind of teaching philosophy, what kind of *progress* would that really be? (*Albertan*, Sept. 20, 1970). Comparatively, Professor Mann's research of colony teachers indicated that the controls the Hutterites try to impose on teachers may be less confining than restrictions created by a teacher's own background and attitude (*Albertan*, Sept. 17, 1974). In Mann's estimation the kind of teacher most likely to have any effect on Hutterites would be one who would stay in a colony for a number of years, perhaps the wife of a local farmer whose livelihood is in the district. This teacher is usually the kind of person with more at stake than younger persons who might merely be experimenting on a colony with their teaching abilities and interests. Mann's research also indicated that the quality of education in the colonies was satisfactory in comparison with that of other Alberta schools. This is a significant statement in that the charge is often made that Hutterite schools suffer from an inferior type of education because of inadequate facilities, etc.

At present it appears that mixed perceptions of Hutterites will continue as long as people are unaware of or only vaguely acquainted with what might be described as a very unique sociological pattern of living. Few people, hopefully, will be as negative as those who suggest that the Hutterites would be better off if they moved on if they don't like our society (*Lethbridge Herald*, June 13, 1974). Some, of course, will continue to act as confused as the individual who noted, "We're not opposed to Hutterites as people . . . It's the way they disrupt our way of life here" (*Lethbridge Herald*, April 16, 1973). And as though it is not enough to be positive, the

Alberta Conference of the United Church demonstrated recently the futility of patronizing positive action when they voted to attempt to “understand them,” going so far as to invite Hutterite participation into ecumenical and interchurch activities (*Lethbridge Herald*, June 9, 1973). Such a gesture might easily be applauded by people in the dominant sector of society, and while viewed positively by Hutterite leaders, its realization on the part of the Hutterites would be a violation of their fundamental religious belief. As such, the resolution represented nothing more than an empty well-wish.

The wish of Hutterites is to remain in Alberta, a land which they wish to honour and respect legally. They have expressed a desire to adjust to demands made upon them so long as they are allowed to practice their religion without persecution or restriction. It seems a simple request to make, but in the case of the Hutterites it is laden with sociological doubts. Freedom and privacy to the Hutterite too frequently spell suspicion and repugnancy to the average Alberta citizen.



The above graph illustrates the status of Mennonites and Hutterites according to public opinion in Alberta in this century. It should be pointed out that public opinion and governmental policy have not always been synonymous in this province, and it appears that government leaders have on occasion disregarded or bypassed public opinion in formulating policy regarding immigration or in other dealings with minority groups. The first indication of this kind of governmental orientation occurred in the early decades of this century when public opinion generally opposed the entry of Mennonites and Hutterites. In the nineteen twenties the Alberta government reversed its stand on immigration of certain groups, appearing to take to heart the attitude of some Albertans who objected to their entry. By 1930 the Mennonites were viewed as a group who might assimilate into Alberta life because of their willingness to participate in some civic matters, while the Hutterites were suddenly being welcomed because of their much needed farming skills. By 1940 the effects of World War II were felt in Canada and those who stood by their pacifist stand, as the Mennonites and Hutterites



did, were regarded as being less than faithful to the country. During the fifties when the war was forgotten by many people, the anti-war stand of the Hutterites and Mennonites was overlooked. The Hutterite land purchase question emerged as the primary issue responsible for negative feelings against them, seconded only by reference to education, specifically Hutterite schools. These topics retain their media appeal even to the present. Public opinion toward Mennonites has become milder in recent decades partially due to gradual assimilative maneuvers by some Mennonites coupled with what might be a fairly successful multicultural approach by the Canadian government. The policy may have been at least partially responsible for the resultant easing up of public opinion against some minority groups.

Perhaps the singular truth of this study reflects the fact that social perceptions change depending on conditions featuring psychological pressures, tight economic arrangements, significant population shifts, etc. Whatever the reason, it is evident that Mennonites and Hutterites have not always been welcome in Alberta because of their varying values and life patterns which at times have appeared to threaten the status quo. In the case of the Mennonites there has been less pressure for conformity, but the communal practices of Hutterites sustain them in the spotlight as a different, and even threatening group. This furnishes evidence that the federal multicultural philosophy endorsing an acceptance of the pluralist culture principle still lacks in public acceptance. The sociological and psychological implications are far reaching, and perhaps find their most urgent fulfillment in the schools of this province.

#### *Educational Implications*

In Canada, schools have proven to be most versatile institutions and educators have experienced many added responsibilities through the decades as the impact of democratic education has continued to reach more and more people. Today's schools handle a complex variety of subjects, and feature as primary concerns skill building activities, fact dissemination and value education. In the latter category particularly, the responsibilities of educators presently resemble the tasks traditionally assumed by parents, protectors, and instructors in moral and ethical behaviour. It might be argued that schools should concern themselves only with factual data, but when one takes into account the success that schools have had in dealing with the "software" of learning, this development seems less ominous. Similarly, since it is a reality that institutions such as the family and church have let slip from their grasp certain youth caretaking functions pertaining to ethics and values, and have relegated them to the school, it is logical that the educators should do their utmost to execute this mandate as efficiently as possible.

One of the more conspicuous subject matter concerns of value teaching has to do with Canada's minority groups. While it might be virtually impossible to treat fully, in the classroom, information pertaining to the cultural patterns of all of Canada's minorities, a careful selection of a few relevant examples might be quite sufficient to serve as a basis for acquainting students with the varying culture maps existent in this country. The first requirement for such a selection would be familiarity



with content for the teacher. It will do little good for anyone to attempt to point out the vignettes of unique cultural forms in Canada if one is not thoroughly acquainted with their underlying values. Certain social practices of some groups, for example, make no sense to the casual observer, but to the trained eye of the ethnographer every component of every social system has a rational ground of explanation for its existence. In a sense, every teacher working in the area of minorities in Canada is required to be a student of culture.

A second implication of this research deals with public attitude toward minority groups in Canada. The negative impact of such attitudes on minorities might be reduced if students in school are taught early to appreciate differences in thought and practice. In the case of the Hutterite culture specifically there is evidence to indicate that very negative attitudes toward them may be correlated with lack of familiarity with their way of life. Thus students need to be informed not only about the content of the minority group phenomenon, but they should be brought to realize what public regard for them is, and be challenged to search out their own perceptions and attitudes toward individual and group differences.

A third implication, educationally, has to do with universities and training centres for teacher education. In the past decade significant strides have been made in Canada in the field of what has come to be called "intercultural education" (Friesen, 1972), an area of study and practice emphasizing specific content and techniques as preparatory for individuals contemplating a teaching career in communities having minority groups resident in them. Although the vast amount of work in intercultural education has been accomplished with regard to Canada's native peoples (Friesen, 1974), other minorities are gradually being included in such curricula. Social studies teachers, more than any other subject matter specialists, deal with people and culture-oriented data, particularly the kind which has been the subject of this study. Teachers who are sensitive to what some kinds of learning experiences can do to students in terms of applying to themselves the lessons encountered in school will recognize that such learnings are not unaccompanied by introspective musing on the part of the student. A perceptive teacher will skillfully assist the student in coming to understand the essential connection between value content and personal obligation, but will not seek to interfere with related future student actions. This task will necessitate for the social studies teacher a walking of the affective tightrope between the pole of indoctrination on one hand and the pole of unfulfilled obligation on the other. Some techniques are better utilized in this procedure than others. The conscientious educator cannot disregard the obligation of illustrating to the student that insofar as minority groups are concerned, the fundamental understanding to be attained is not merely a cultural one. Rather it involves the grasping of a basically logical presupposition essential to the Canadian way of life—that human beings should not be regarded merely from the standpoint of an individual's perceptive experience, be it economically or psychologically influenced, but should be allowed the privilege of personal identity. That identity necessarily includes the privilege of adopting varying life-styles and beliefs without

undue external hindrance. When that lesson is learned, multiculturalism in Canada will cease to be a slogan and assume functional proportions.

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## Perceptions of Parents, Teachers and Administrators to Parental Involvement in Early Childhood Programs

*A sample of 24 teachers and 36 administrators who were involved with kindergarten programs in the Edmonton Public School system, together with 87 parents of children in the same programs, responded to two forms of a questionnaire in which they were asked to rate the frequency of occurrence of parental involvement in specific tasks. One form of the questionnaire sampled actual parental involvement while the other form sampled preferred parental involvement. The responses were analyzed and the results indicated differences between the parental group and the teacher and administrator groups as well as differences between actual and preferred ratings of parental involvement. All three groups perceived less actual than preferred parental involvement in certain types of parental involvement tasks. Parents were by no means unanimous in preferring more parental involvement than they perceived they actually had at present. (Dr. Jackson is Associate Professor in the Department of Elementary Education, University of Alberta; Ms. Stretch is Assistant Principal at J. A. Fife Elementary School.)*

Early childhood programs have tended in the last few years to place increasing emphasis upon parental involvement. Indicative of this trend in the province of Alberta is the statement of the Early Childhood Services Branch of the Government of Alberta.

The involvement and cooperation of parents and community agencies in the decision-making processes which affect vital areas of their own, and their children's lives is strongly endorsed (Government of Alberta, 1973, p. 18). This trend is not limited to Alberta, however, and is being felt throughout North America.

In spite of the trend towards greater involvement of parents in early childhood programs, relatively little research has examined the perceptions of parents, teachers and administrators towards parental involvement. Consequently it was the purpose of this study to examine the perceptions of three groups—parents, teachers and administrators—towards the ways in which parents are actually being involved in an early childhood (kindergarten) program and the perceptions of the same three groups towards the preferred ways in which parents should be involved in the same program.

### *Research Procedures*

This study was carried out in Edmonton, Alberta, Canada during April and May of 1975 in the schools of the Edmonton Public School Board. The principal data gathering instrument consisted of a series of questionnaires.

### *Design of the Instrument*

In order to ascertain the perceptions of the three groups—parents, teachers and administrators—towards parental involvement, it was decided that a questionnaire technique would be employed. To adequately sample perceptions of the groups towards parental involvement, it was necessary to examine the possible types of involvement that parents could have in early childhood programs in order to comprehensively reflect all aspects of potential parental involvement. A number of authors and researchers (Gordon, 1970; Hess, Block, Costell, Knowles & Largen, 1971; Calvert, 1971; Datta, 1973; Schmerber, 1974; Wood, 1974) have attempted to categorize the various types of possible parental involvement. As a result of a review of the literature and a series of parental interviews, it was decided that, for the purposes of this research, parental involvement could be categorized into five types.

- (1) Parents as recipients and supporters:  
Parental involvement that focuses upon parents participating as passive recipients of information from the school.
- (2) Parents as educators and learners:  
Parental involvement that focuses upon parents participating by teaching the child at home and becoming interested in learning about the child, the school, and the program.
- (3) Parents as non-instructional volunteers:  
Parental involvement that focuses upon parents participating in non-instructional, clerical kinds of support tasks.
- (4) Parents as instructional volunteers:  
Parental involvement that focuses upon parents participating by assuming responsibility in actual classroom activities under the direction of a teacher.
- (5) Parents as decision makers:  
Parental involvement that focuses upon parents participating by assuming a partnership role in the school and making decisions, alone or in conjunction with other groups, regarding the development, implementation and evaluation of early childhood programs.

On the basis of the above five-part category system as well as a series of interviews with selected parents, specific tasks were generated which were

considered to reflect a particular type of parental involvement and to reflect realistically the pragmatics of an ongoing school program. Eight tasks were selected from those generated for each of the five categories. The research instrument therefore consisted of forty parental involvement tasks which reflected equally each of the five types of parental involvement described above. The tasks were randomly distributed throughout the instrument. Each respondent was required to read each task carefully and to react to each of the tasks by seeking a response along a continuum of five possible choices—very much, much, somewhat, little, none. The five choices measured the degree of parental involvement perceived by the respondent for each of the parental involvement tasks. The respondents were required to complete the forty-item questionnaire twice. The first responses were to indicate the actual involvement of parents in the present kindergarten program in terms of the selected tasks. The second responses were to indicate the ways in which the respondent preferred parents to be involved in early childhood education programs in terms of the selected tasks.

### *The Sample*

The respondents selected for this study were parents, teachers and administrators involved in kindergarten programs in twenty-three schools in the Edmonton Public School System. The sample consisted of teachers, principals and assistant principals in all twenty-three schools and five parents selected randomly from class lists in each of the schools. The researcher personally delivered and collected the questionnaires from each of the schools. Questionnaires were sent to parents through the kindergarten child. All parents had been telephoned and informed of the coming questionnaire and asked for their participation. All of the 36 administrators and 24 teachers returned valid questionnaires while 75% of the 115 parents did likewise.

### *Results of the Study*

After the data were compiled, analysis was first undertaken to examine possible differences between the perceptions of actual and preferred parental involvement within each of the groups. Means and standard deviation were computed and the means compared through t-tests; the results appear in Tables 1, 2, and 3.

It may be seen from Table 1 that significant differences ( $p < .01$ ) exist between the parents' perceptions of actual and preferred parental involvement for all five types of tasks. In the case of types 1 and 2, parents perceived significantly more actual than preferred involvement with these types of tasks. In the case of the remaining three types of tasks, parents perceived less actual than preferred involvement in these tasks.

Table 2 shows that no significant difference occurred in the teachers' perceptions of actual and preferred parental involvement for type 1 tasks. For the remaining four types of tasks, teachers perceived significantly less ( $p < .01$ ) actual than preferred parental involvement in each of the four types of parental involvement tasks.

As seen in Table 3, administrators' perceptions of actual parental involvement in type 1 tasks differed significantly ( $p < .05$ ) from their



TABLE 1  
PARENTS' PERCEPTIONS OF PARENT INVOLVEMENT—ACTUAL AND  
PREFERRED

Actual Involvement						Preferred Involvement					
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	
Means	28.1	23.6	13.5	12.2	11.4	22.2	20.6	24.2	23.4	24.4	
Standard Deviation	6.5	4.3	4.6	3.9	5.6	6.1	7.1	7.1	7.4	7.6	
t-test Values for Means											
Actual	Preferred				t	df	Prob.				
Variable (1) with Variable (1)					7.728	86	0.0000				**
Variable (2) with Variable (2)					4.244	86	0.0001				**
Variable (3) with Variable (3)					-12.901	86	0.0000				**
Variable (4) with Variable (4)					-14.809	86	0.0000				**
Variable (5) with Variable (5)					-13.675	86	0.0000				**
Significant:			Types: (1) Parents as recipients and supporters								
* .05 level			(2) Parents as learners and educators								
** .01 level			(3) Parents as non-instructional volunteers								
			(4) Parents as instructional volunteers								
			(5) Parents as decision makers								

TABLE 2  
TEACHERS' PERCEPTIONS OF PARENT INVOLVEMENT—ACTUAL AND  
PREFERRED

Actual Involvement						Preferred Involvement					
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	
Means	28.6	22.5	19.2	18.9	18.5	27.2	29.0	31.3	31.4	32.3	
Standard Deviation	6.4	4.8	4.2	5.0	4.4	6.3	7.1	7.4	7.5	8.0	
t-Test Values for Means											
Actual	Preferred				t	df	Prob.				
Variable (1) with Variable (1)					0.853	23	0.4023				N.S.
Variable (2) with Variable (2)					-4.253	23	0.0003				**
Variable (3) with Variable (3)					-8.110	23	0.0000				**
Variable (4) with Variable (4)					-11.380	23	0.0000				**
Variable (5) with Variable (5)					-8.179	23	0.0000				**
Significant:			Types: (1) Parents as recipients and supporters								
* .05 level			(2) Parents as learners and educators								
** .01 level			(3) Parents as non-instructional volunteers								
			(4) Parents as instructional volunteers								
N.S. Not significant			(5) Parents as decision makers								

perceptions of preferred parental involvement in these same tasks. Administrators perceived more actual involvement in type 1 tasks than preferred involvement of parents in this type of task. For each of the four remaining types of parental involvement tasks, administrators perceived significantly less ( $p<.01$ ) actual than preferred parental involvement in these types of tasks.

In summary, the results indicate that all three groups perceived significantly less ( $p<.01$ ) actual than preferred parental involvement for

TABLE 3  
ADMINISTRATORS' PERCEPTIONS OF PARENT INVOLVEMENT—ACTUAL  
AND PREFERRED

	Actual Involvement					Preferred Involvement				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Means	27.5	21.7	19.9	17.6	20.5	25.6	27.0	29.8	28.3	29.3
Standard Deviation	5.2	4.6	5.2	4.2	4.3	3.2	4.3	4.3	4.9	5.1

t-Test Values for Means					
Actual	Preferred	t	df	Prob.	
Variable (1) with Variable (1)		2.164	35	0.0373	*
Variable (2) with Variable (2)		-5.679	35	0.0000	**
Variable (3) with Variable (3)		-9.648	35	0.0000	**
Variable (4) with Variable (4)		-9.700	35	0.0000	**
Variable (5) with Variable (5)		-7.927	35	0.0000	**

Significant:	Types:	(1) Parents as recipients and supporters
* .05 level		(2) Parents as learners and educators
** .01 level		(3) Parents as non-instructional volunteers
		(4) Parents as instructional volunteers
		(5) Parents as decision makers

parental involvement tasks types 3, 4, and 5. The results for parental involvement tasks types 1 and 2 differed from group to group. Parents perceived significantly more ( $p<.01$ ) actual than preferred parental involvement with type 2 tasks while teachers and administrators perceived significantly less ( $p<.01$ ) actual than preferred parental involvement with the same type of parental involvement tasks. While parents perceived significantly more ( $p<.01$ ) actual than preferred parental involvement with type 1 tasks, teachers' perceptions did not differ significantly whereas administrators' perceptions of actual and preferred involvement differed significantly ( $p<.05$ ).

The second major thrust of the analysis was to determine possible differences in the perceptions of the actual and preferred parental involvement in terms of the five types of parental involvement tasks between the three groups. Means and standard deviations for each of the groups were calculated and compared by means of the Scheffé multiple

TABLE 4  
COMPARISON OF RESPONSES FOR ACTUAL INVOLVEMENT AT TYPE (1)  
PARENTS AS RECIPIENTS AND SUPPORTERS

Group	Number	Mean	S.D.
Teachers	24	28.6	6.5
Administrators	36	27.5	5.3
Parents	87	28.1	6.5
Total	147	28.1	6.2

$p = .8; \quad F = 0.22 \text{ (df } 2,144)$

comparison of means procedure. The results of this analysis appear in Tables 4 through 13.

Table 4 presents the means and standard deviations for the three groups in response to actual parental involvement in type 1 tasks. A one-way analysis of variance to determine potential differences between the groups indicated no significant differences.

TABLE 5  
COMPARISON OF RESPONSES FOR PREFERRED INVOLVEMENT AT TYPE (1)  
PARENTS AS RECIPIENTS AND SUPPORTERS

Group	Number	Mean	S.D.
Teachers	24	27.2	6.4
Administrators	36	25.6	3.2
Parents	87	22.2	6.1
Total	147	23.9	5.9
$p = 0.00; \quad F = 10.00 \text{ (df 2,144)}$			
Probability Matrix for the Scheffé Multiple Comparison of Means (Preferred Involvement--Parents as Recipients and Supporters)			
Group	1	2	3
Teachers	1.0000		
Administrators	0.5619	1.0000	
Parents	0.0007**	0.0095*	1.0000
Significant:			
* .05 level			
** .01 level			

Table 5 presents the means and standard deviations for the three groups in response to preferred involvement of parents in type 1 tasks. The Scheffé probability matrix indicates significant differences ( $p < .01$ ) between the perceptions of parents and those of both teachers and administrators to preferred parental involvement in type 1 tasks with parents preferring less involvement than teachers or administrators in this type of parental involvement task.

Tables 6 and 7 present the results of similar analysis of parent, teacher and administrator responses to actual and preferred involvement of parents in type 2 tasks. The results of the analysis are similar to those for type 1 parental involvement tasks. There were no significant differences

TABLE 6  
COMPARISON OF RESPONSES FOR ACTUAL INVOLVEMENT AT TYPE (2)  
PARENTS AS LEARNERS AND EDUCATORS

Group	Number	Mean	S.D.
Teachers	24	22.5	4.9
Administrators	36	21.7	4.6
Parents	87	23.6	4.4
Total	147	22.9	4.5
$p = .11; \quad F = 2.24 \text{ (df 2,144)}$			



TABLE 7  
COMPARISON OF RESPONSES FOR PREFERRED INVOLVEMENT AT  
TYPE (2)—PARENTS AS LEARNERS AND EDUCATORS

Group	Number	Mean	S.D.
Teachers	24	29.0	7.3
Administrators	36	27.0	4.3
Parents	87	20.6	7.2
Total	147	23.5	7.5
$p = 0.0; F = 21.68$ (df 2,144)			
Probability Matrix for the Scheffé Multiple Comparison of Means (Preferred Involvement--Parents as Learners and Educators)			
Group	1	2	3
Teachers	1.0000		
Administrators	0.5156	1.0000	
Parents	0.0000**	0.0000**	1.0000
Significant:			
* .05 level			
** .01 level			

between the three groups in their perceptions of actual involvement in type 2 tasks. However, parents differed significantly ( $p < .01$ ) from both teachers and administrators in their perceptions of preferred parental involvement in type 2 tasks with parents preferring less involvement in this type of task than teachers or administrators.

The analysis of responses of the three groups to type 3 tasks (Tables 8 and 9) indicated a change from the analysis performed for the first two types of parental involvement tasks. Parents now differed significantly

TABLE 8  
COMPARISON OF RESPONSES FOR ACTUAL INVOLVEMENT AT TYPE (3)  
PARENTS AS NON-INSTRUCTIONAL VOLUNTEERS

Group	Number	Mean	S.D.
Teachers	24	19.2	4.3
Administrators	36	19.9	5.2
Parents	87	13.5	4.6
Total	147	16.0	5.6
$p = 0.0; F = 30.11$ (df 2,144)			
Probability Matrix for the Scheffé Multiple Comparison of Means (Actual Involvement--Parents as Non-Instructional Volunteers)			
Group	1	2	3
Teachers	1.0000		
Administrators	0.8637	1.0000	
Parents	0.0000**	0.0*	1.0000
Significant:			
* .05 level			
** .01 level			

TABLE 9  
COMPARISON OF RESPONSES FOR PREFERRED INVOLVEMENT AT  
TYPE (3)—PARENTS AS NON-INSTRUCTIONAL VOLUNTEERS

Group	Number	Mean	S.D.
Teachers	24	31.3	7.5
Administrators	36	29.8	4.3
Parents	87	24.2	7.4
Total	147	26.7	7.4
$p = 0.0; \quad F = 14.76 \text{ (df 2,144)}$			
Probability Matrix for the Scheffe Multiple Comparison of Means (Preferred Involvement--Parents as Non-Instructional Volunteers)			
Group	1	2	3
Teachers	1.0000		
Administrators	0.7092	1.0000	
Parents	0.0001**	0.0003**	1.0000
Significant:			
* .05 level			
** .01 level			

from both teachers ( $p<.01$ ) and administrators ( $p<.01$ ) in their perceptions of the actual involvement of parents in type 3 tasks in an ongoing kindergarten program with parents perceiving less actual involvement. As well, parents still differed significantly ( $p<.01$ ) from both teachers and administrators in their perceptions of preferred parental involvement in type 3 tasks with parents expressing a preference for less involvement in this type of task.

The analysis of the responses of the three groups to type 4 tasks (Tables 10 and 11) illustrates the continuation of the trend seen with type 3 tasks.

TABLE 10  
COMPARISON OF RESPONSES FOR ACTUAL INVOLVEMENT AT TYPE (4)  
PARENTS AS INSTRUCTIONAL VOLUNTEERS

Group	Number	Mean	S.D.
Teachers	24	18.9	5.1
Administrators	36	17.6	4.3
Parents	87	12.2	4.0
Total	147	14.6	5.1
$p = 0.0; \quad F = 34.52 \text{ (df 2,144)}$			
Probability Matrix for the Scheffé Multiple Comparison of Means (Actual Involvement--Parents as Instructional Volunteers)			
Group	1	2	3
Teachers	1.0000		
Administrators	0.5587	1.0000	
Parents	0.0*	0.0*	1.0000
Significant:			
* .05 level			
** .01 level			

TABLE 11  
COMPARISON OF RESPONSES FOR PREFERRED INVOLVEMENT AT  
TYPE (4)—PARENTS AS INSTRUCTIONAL VOLUNTEERS

Group	Number	Mean	S.D.
Teachers	24	31.4	7.6
Administrators	36	28.3	5.0
Parents	87	23.4	7.3
Total	147	25.9	7.5
$p = 0.0; \quad F = 15.62 \text{ (df 2,144)}$			

Probability Matrix for the Scheffé Multiple Comparison of Means  
(Preferred Involvement--Parents as Instructional Volunteers)

Group	1	2	3
Teachers	1.0000		
Administrators	0.2542	1.0000	
Parents	0.0000**	0.0018**	1.0000

Significant:

- \* .05 level
- \*\* .01 level

Parents differed significantly ( $p<.01$ ) from both teachers and administrators in their perceptions of the actual involvement of parents in type 4 tasks in an ongoing kindergarten program with parents perceiving less actual involvement. As well, parents differed significantly ( $p<.01$ ) from both teachers and administrators in their perception of preferred parental involvement in type 4 tasks with parents expressing a preference for less involvement in this type of task than either of the other two groups.

Finally, the analysis of the responses of the three groups to type 5 tasks,

TABLE 12  
COMPARISON OF RESPONSES FOR ACTUAL INVOLVEMENT AT TYPE (5)  
PARENTS AS DECISION MAKERS

Group	Number	Mean	S.D.
Teachers	24	18.5	4.5
Administrators	36	20.5	4.3
Parents	87	11.4	5.6
Total	147	14.8	6.6
$p = 0.0; \quad F = 45.53 \text{ (df 2,144)}$			

Probability Matrix for the Scheffé Multiple Comparison of Means  
(Actual Involvement - Parents as Decision Makers)

Group	1	2	3
Teachers	1.0000		
Administrators	0.3410	1.0000	
Parents	0.0000**	0.0*	1.0000

Significant:

- \* .05 level
- \*\* .01 level



TABLE 13  
COMPARISON OF RESPONSES FOR PREFERRED INVOLVEMENT AT  
TYPE (5)—PARENTS AS DECISION MAKERS

Group	Number	Mean	S.D.
Teachers	24	32.3	8.1
Administrators	36	29.3	5.1
Parents	87	24.4	7.7
Total	147	26.9	7.8
$p = 0.0; \quad F = 14.11 \text{ (df 2,144)}$			
Probability Matrix for the Scheffé Multiple Comparison of Means (Preferred Involvement - Parents as Decision Makers)			
Group	1	2	3
Teachers	1.0000		
Administrators	0.2983	1.0000	
Parents	0.0000**	0.0031**	1.0000
Significant:			
* .05 level			
** .01 level			

as indicated in Tables 12 and 13, extends the trends developed in response to type 2 and type 3 tasks. Parents differed significantly from teachers ( $p<.01$ ) and administrators ( $p<.05$ ) in their perceptions of the actual involvement of parents in type 5 tasks in an ongoing kindergarten program with parents perceiving less involvement. As well, parents differed significantly ( $p<.01$ ) from both teachers and administrators in their perception of preferred parental involvement in type 5 tasks with parents perceiving less involvement in this type of task than either teachers or administrators.

*Summary and Discussion*

In summary, the results seem to indicate that all three groups perceived less actual parental involvement than they would prefer for certain types of parental involvement tasks—parents as non-instructional volunteers, parents as instructional volunteers, and parents as decision-makers. Thus while parental involvement in early childhood programs is currently being espoused, such involvement may yet be more apparent than real for certain types of tasks. However, parents are by no means unanimous in preferring more involvement than they perceive they actually have at present. The results for parental involvement tasks types 1 and 2—parents as recipients and supporters, and parents as learners and educators—indicate that parents prefer less involvement in these types of tasks than they perceive they currently have. Thus, from the parents' point of view, it may be that involvement in a variety of tasks is more desirable than a great deal of involvement in certain tasks with little involvement in other types of parental involvement tasks.

An examination of differences between the three groups in their perceptions of actual and preferred parental involvement in the five types of tasks indicated considerable differences between the groups. In all instances where significant differences occurred, the differences were

between the parent group on the one hand and the two professional educator groups on the other. Significant differences never occurred between the teacher group and the administrator group. Thus it would appear that, while professional educators share a common perception about parental involvement in early childhood programs, that perception is not necessarily congruent with the perception held by the parents themselves.

Another interesting finding was that in all instances where significant differences occurred between the parent group and the other two groups, it was the parent group that perceived less actual preferred involvement. In no case did the parent group perceive a significantly greater amount of actual or preferred involvement than the teacher or administrator groups. Thus, professional educators seem to perceive greater amounts of actual or preferred parental participation in early childhood programs than do parents at the present time.

Undoubtedly the issue of parental involvement in early childhood programs will continue in the future and program designers and implementers will continue to try to involve parents in school programs. The results of the present study seem to indicate that professional educators need to be cognizant of the possibility that their perceptions of parental involvement in early childhood programs may not be congruent with the perceptions of those very parents they are trying to involve.

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## **The Effects of Senior Students as Teacher Aides With Special Reference to Teaching Behaviour**

*This study of 28 grade 2 to 6 teachers assigned teacher aides compared their teaching behaviour to those of 28 like teachers without aides in a before-and-after design. Teaching behaviour was measured by the Indicators of Quality (IOQ) Scale which yielded 8 scores. For only grade 4, 5, and 6 teachers was there any suggestion that the presence of an aide enhanced those behaviours measured by only the IOQ Creativity score. For administrative purposes, however, it was concluded that the presence of a teacher aide in the classroom did not result in change in observable teacher behaviours nor difference from those of like teachers without aides. (Dr. Black is a Professor in the Department of Educational Psychology, The University of Calgary; Mr. Bunyan is Coordinator of Elementary Education, Calgary R.C. Separate School Board; Ms. Black is with the Edmonton Public School Board.)*

One of the most frequently stated claims for the use of teacher aides in the classroom is that this will permit better teaching (e.g., Emmerling & Chavis, 1966, p. 175). Conant (1971) has established that the presence of aides in an elementary classroom increases teacher instruction time from 92 to 109 minutes daily (p. 3) and reduces routine work time from 144 to 127 minutes (p. 33). However, better teaching by teachers could also be manifested in better preparation or more carefully planned classroom management techniques. Either of the two possibilities should result in some change in teaching behaviour from that which existed before aides were introduced. Surprisingly, there is little published research to support



or refute these claims. The topic is not even mentioned in the *Second Handbook of Research on Teaching* (Travers, 1973).

This study sought to examine this issue in the elementary school and involved twenty-eight teachers and their aides in three experimental schools and twenty-eight teachers in four control schools. The distribution of this sample by grades is reported in Table 1.

TABLE 1  
DISTRIBUTION OF EXPERIMENTAL AND CONTROL SAMPLES BY GRADE

Grade	Division One		Division Two			Total
	2	3	4	5	6	
Control (C)	5	5	6	6	6	28
Experimental (X)	5	5	6	6	6	28
Total	10	10	12	12	12	56

Seven schools in the Calgary Separate School system were used in this study. The schools were selected in three areas of the city near three senior high schools which supplied the aides. All aides were grade twelve students. The schools were chosen on the basis of size and, more importantly, the control school was chosen such that its attendance area had the same socioeconomic status as the matched experimental school. Usually, the two areas adjoined one another. In one instance, however, to meet the “adjoining socioeconomic status” criterion, two smaller schools were used and paired with the experimental school. Within each school not more than two teachers were selected for each grade and these were chosen at random. Split grade classes were excluded. In the two smaller schools, only one teacher per grade per school was selected at random for inclusion in this study. Grade one teachers were excluded on the grounds that the teaching behaviour in this grade is so manifestly different from the other five elementary grades as to make any comparison a tenuous thing at best.

The study design was of the before-and-after type. The pre-observations of teacher behaviour took place in very early February before the aides were introduced. However, each teacher had had the class since the start of school in September. The post-testing took place four months later, in late May. Observation was by seven trained observers and was randomized, both by observer and occurrence, which was in one of four time periods during the Tuesday, Wednesday or Thursday morning. Each teacher in each round was observed at least twice at different times by a different observer in each observation. In 44 instances of the 112 observations, a third observation by a third observer was made simultaneously with one other. As a result of consultation with the teachers all observations were confined to mornings because (i) the aides were always present; (ii) this was the period the teachers found the aides to be most useful; and finally, (iii) this was the period when the “core” of academic subjects is traditionally taught, and this would give a modest measure of curricular uniformity to the observations.

To measure behaviour, the observers used the *Indicators of Quality*

Scale, an instrument published and scored by the Institute of Administrative Research (I.A.R.), Teachers' College, Columbia University, New York. The scale consists of fifty-one polarized statements of behaviour or signs which the observer notes as being present or not present in a given observation period. Seventeen of the items relate to teacher behaviour, another seventeen to pupil behaviour, and a final seventeen to teacher-pupil interaction.

From these fifty-one items four additional scores, Individualization, Interpersonal Regard, Group Activity and Creativity, are obtained. These four scores are based on selected items taken from each of the preceding three item constellations. Individualization scores are based on items referring to the degree to which the teacher has adjusted her instruction to class needs of the individual pupils during the observation period. These items included such concepts as knowledge of pupils, physical facilities and arrangements, different tasks and communication, such as the modification of questioning to suit the pupil. Interpersonal Regard scores relate primarily to the affective side of pupil-teacher relationships. These items include such signs as demeanour, patience, pupil involvement, respect, physical movement, pupil involvement and error behaviour. Group Activity items reflect such things as physical arrangement, decision making, group goal setting, role distribution, consensus, intercommunications and conflict resolution. Creativity scores include such concepts as time for thinking, skills of thinking, testing ideas, opportunity for speculation, unusual ideas, question and answer techniques, abundance of materials and so on.

The *Indicators of Quality Scale*, while not reported in Buros (1972), is referred to extensively, both in development and use, in the *I.A.R. Bulletins*. The instrument has been used in connection with studies of classroom variables affecting the quality of teaching, such as class size. However, at the time of this study, this was the first time the scale had been used in the fashion reported here. The best description of the purpose of the *Indicators of Quality Scale* is that of its designer, W. S. Vincent (1972):

In the case of Indicators, the intention was to produce a pure measure of process, uncontaminated by input items. The intention was almost completely realized. Virtually the entire focus of the instrument is on the behavior of teachers and pupils. Thus it is an independent criterion and the effects of input upon this criterion may be analyzed in order to study the relation of inputs, singly and in combination, with school quality. (p. 2)

The fifty-one items of the instrument have their basis in forty concepts deemed to be critical in the identification of quality teaching as reported in the literature and as agreed upon by an array of acknowledged experts in the appropriate areas. Martin (1972) reports that, for grade six at least, both teacher and pupil perceptions of good and poor teaching are in agreement with the score reported on the IOQ Scale. Much the same findings for teacher perceptions alone are also reported by Ledford (1971).

Scoring of the Scale is done by the publisher, and is based on a count of the presence of positive and negative signs. The Associate Director of the Institute of Administrative Research, Dr. M. N. Olson, besides citing Casey (1971), noted in private correspondence that other non-published research



has confirmed that the most reliable scores were obtained by subtracting the number of negative signs from the sum of positive signs for each score. This is referred to as the Mean Difference Score (MDS). It was these MDS scores that were used in this study. Finally, although as noted above there were multiple observations of each teacher in each round, the scoring procedures of I.A.R. are such that only a single composite score was reported for each teacher during each round. It was argued that this enhances the reliability of the reported observations.

Because of the nature of the IOQ Scale, the observers must be trained particularly in the description and classifications of teaching behavior. The seven observers in this study<sup>1</sup> were trained initially in a three-day workshop conducted by Dr. Olson before the study began and again in a one-day refresher workshop in mid-May before the final round of observations.

For this study, four hypotheses, all in null form, were developed that were applicable to all eight IOQ scores for the total and divisions one and two sub-samples. These were as follows:

- (1) The pre-test scores of the control school teachers (CX) will not differ except by chance factors in sampling from the pre-test scores of the experimental school teachers (XX), i.e.,  $CX = XX$ .
- (2) The pre-test scores of the control school teachers (CX) will not differ other than by chance from their post-test scores (CY), i.e.,  $CX = CY$ .
- (3) The pre-test scores of the experimental school teachers (XX) will not differ from their post-test scores (XY) except by chance, i.e.,  $XX = XY$ . (Secondary hypothesis ( $H_1$ ):  $XY > XX$ .)
- (4) The post-test scores of the control school teachers (CY) will not differ from those of the experimental school teachers (XY) except by chance factors, i.e.,  $XY = CY$ . (Secondary hypothesis ( $H_1$ ):  $XY > CY$ .)

To test these hypotheses for divisions one and two and total samples, in turn, two approaches were used. First, using the means and standard deviations for each variable, the conventional "t" test was performed as appropriate for correlated (Hypotheses 2 and 3) and uncorrelated scores (Hypotheses 1 and 4). In the event that Hypothesis 3 or 4 was rejected, the particular data were then subjected to a one-tailed test to examine the secondary hypothesis ( $H_1$ ), namely, that the experimental school teachers would obtain higher scores than the control school teachers.

A second series of tests was conducted which examined only the direction of change in scores from pre- to post-testing. As before, the null hypothesis was struck for each of the eight scores by level for each of the control and experimental samples. It stated that any change in scores from pre- to post-testing, whether it be higher (+), the same (0) or lower (-), would be no different from that expected by chance alone. The Sign Test (Siegel, 1956, pp. 68-72) was used in this analysis of the hypotheses  $C(+) = C(-)$  and  $X(+) = X(-)$ . The third hypothesis in this series, again in null form, stated that the direction of changes in scores between the control and experimental groups could be attributed to chance factors, i.e.,  $C(+) = X(+)$ . The conventional chi-squared test corrected for contingency (Siegel, 1956, pp. 107-109) was used. However, in this case "direction" was given to the data in that all cases reporting no gain were cast in with those reporting lower scores on the post-testing. Although not reported, the same data were also



TABLE 2  
MEANS AND STANDARD DEVIATIONS OF TOTAL AND SUB-SCORES AND  
CORRELATION COEFFICIENTS BETWEEN PRE- AND POST-TESTING WITH  
INDICATORS OF QUALITY SCALE AND DIRECTION OF CHANGE OF SCORES  
FROM PRE- TO POST-TESTING FOR DIVISION ONE TEACHERS

	All Items		Teacher Items		Pupil Items		Teacher-Pupil Items		Individualization		Inter-Personal Regard		Group Activity		Creativity	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Control Group (C) N = 10	Mean 13.00 S.D. 2.45 r .14	14.80 2.79 .14	11.65 0.74 .18	12.30 1.33 .18	11.10 1.14 .01	11.15 1.21 .01	10.75 1.15 -.05	11.35 1.14 .05	11.25 1.25 .50	11.30 1.14 .50	11.55 1.15 .11	12.95 1.86 .11	10.85 0.84 -.28	11.30 1.21 .28	10.15 1.42 .15	10.60 0.99 .15
Experimental Group (X) N = 10	Mean 14.15 S.D. 3.08 r .84	14.75 4.46 .84	11.80 1.54 .71	12.50 1.97 .71	11.15 0.74 .65	10.95 1.27 .65	11.20 1.58 .70	11.30 1.89 .70	11.35 1.61 .24	11.90 1.81 .24	11.95 1.56 .91	12.35 2.15 .91	11.10 0.94 .90	10.85 1.73 .90	10.85 1.61 .57	10.85 1.57 .57
Hypothesis Tested	$\overline{CX} = \overline{XX}$ $\overline{CX} = \overline{CY}$ $\overline{XX} = \overline{XY}$ $\overline{XY} = \overline{CY}$	---** --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---
Control Group (C) N = 10	(+)* (0) (-)	7 - 3	6 2 2	6 2 2	5 1 4	5 1 4	7 - 3	7 - 3	5 - 5	5 - 5	7 - 3	7 - 3	6 1 3	6 1 3	6 - 4	6 - 4
Experimental Group (X) N = 10	(+) (0) (-)	5 1 4	7 - 3	7 - 3	4 - 6	4 - 6	5 2 3	5 2 3	6 1 3	6 1 3	6 1 3	6 1 3	3 4 3	3 4 3	5 2 3	5 2 3
Hypothesis Tested	$C(+)=C(-)$ $X(+)=X(-)$ $C(+)=X(-)$	--- --- ---	--- --- ---	--- --- ---	--- --- ---	--- --- ---	--- --- ---	--- --- ---	--- --- ---	--- --- ---	--- --- ---	--- --- ---	--- --- ---	--- --- ---	--- --- ---	--- --- ---

\* (+) - Number of cases with pre-test (X) scores higher than post-test (Y) scores  
(0) - Number of cases with pre-test (X) scores the same as post-test (Y) scores  
(-) - Number of cases with pre-test (X) scores lower than post-test (Y) scores  
\*\* - Indicates Hypothesis is not rejected because no statistically significant difference was found, et seq.

et seq.

TABLE 3  
MEANS AND STANDARD DEVIATIONS OF TOTAL AND SUB-SCORES AND  
CORRELATION COEFFICIENTS BETWEEN PRE- AND POST-TESTING WITH  
INDICATORS OF *QUALITY* SCALE AND DIRECTION OF CHANGE OF SCORES  
FROM PRE- TO POST-TESTING FOR DIVISION TWO TEACHERS

	All Items	Teacher Items		Pupil Items		Teacher-Pupil Items		Individualization		Inter-Personal Regard		Group Activity		Creativity	
		Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Control Group (C) N = 18	Mean S.D. r	14.33 2.67 .17	13.94 3.47 .17	11.94 1.49 .55	11.92 0.79 .55	10.75 1.13 .45	10.44 1.72 .45	11.64 0.64 -.29	11.36 1.52 .32	12.14 1.08 -.12	11.94 1.24 .11	11.11 1.01 .22	11.00 1.67 .22	10.94 1.31 .37	10.61 1.37 .37
Experimental (X) N = 18	Mean S.D. r	13.56 3.21 .30	14.56 4.84 .30	11.78 1.39 .08	12.17 2.33 .08	10.81 1.36 .04	10.92 1.33 .04	10.97 1.42 .32	11.47 1.87 .32	12.39 1.65 .13	12.31 2.29 .13	10.86 1.64 .11	10.75 1.80 .11	10.17 1.63 .26	11.17 1.60 .26
Hypothesis Tested	$C\bar{X} = X\bar{X}$ $C\bar{X} = C\bar{Y}$ $X\bar{X} = X\bar{Y}$ $X\bar{Y} = C\bar{Y}$	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Control Group (C) N = 18	(+) (0) (-)	6 1 11	8 3 7	6 2 10	7 2 9	6 4 8	8 - 10	7 - 11	8 - 10	7 - 11	7 - 11	7 - 11	7 - 11	7 - 11	7 - 11
Experimental (X) N = 18	(+) (0) (-)	11 - 7	10 2 6	6 3 9	10 1 7	10 2 6	8 1 9	6 3 9	10 1 9	8 1 9	6 3 9	6 3 9	6 3 9	12 2 4	12 2 4
Hypothesis Tested	$C(+)=C(-)$ $X(+)=X(-)$ $C(+)=X(-)$	---	---	---	---	---	---	---	---	---	---	---	---	---	---

\*Secondary Hypothesis (H1),  $X\bar{Y} > X\bar{X}$ , is not rejected at this level of confidence, et seq.

TABLE 4  
MEANS AND STANDARD DEVIATIONS OF TOTAL AND SUB-SCORES AND  
CORRELATION COEFFICIENTS BETWEEN PRE- AND POST-TESTING WITH  
INDICATORS OF QUALITY SCALE AND DIRECTION OF CHANGE OF SCORES  
FROM PRE- AND POST-TESTING FOR ALL TEACHERS

	All Items		Teacher Items		Pupil Items		Teacher-Pupil Items		Individualization		Inter-Personal Regard		Group Activity		Creativity		
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	
Control Group (C) N = 28	Mean	13.86	14.25	11.84	12.05	10.88	10.70	11.14	11.36	11.27	11.21	11.93	12.30	11.02	11.11	10.66	10.61
	S.D. r	2.64 .14	3.25 .14	1.24 .35	1.10 .35	1.10 .30	1.55 .30	1.12 .13	1.37 .13	1.12 .28	1.22 .28	1.13 -.09	1.58 .04	0.92 .04	1.51 .04	1.38 .26	1.22 .26
Experimental (X) N = 28	Mean	13.77	14.63	11.79	12.19	10.93	10.93	11.05	11.41	10.96	11.48	12.23	12.32	10.95	10.79	10.41	11.05
	S.D. r	3.18 .48	4.70 .48	1.42 .28	2.20 .28	1.20 .18	1.32 .18	1.50 .46	1.87 .46	1.82 .36	1.86 .36	1.66 .40	2.26 .40	1.40 .26	1.75 .26	1.67 .36	1.64 .36
Hypothesis Tested	$\overline{CX} = \overline{XX}$	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	$\overline{CX} = \overline{CY}$	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	$\overline{XX} = \overline{XY}$	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	$\overline{XY} = \overline{CY}$	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Control Group (C) N = 28	(+)	13	13	14	14	11	11	14	14	11	11	15	15	13	13	13	13
	(0)	1	1	5	5	3	3	2	2	4	4	--	--	1	1	2	2
	(-)	14	14	9	9	14	14	12	12	13	13	13	13	14	14	13	13
Experimental (X) N = 28	(+)	16	16	17	17	10	10	15	15	16	16	14	14	9	9	17	17
	(0)	1	1	2	2	3	3	3	3	3	3	2	2	7	7	4	4
	(-)	11	11	9	9	15	15	10	10	9	9	12	12	12	12	7	7
Hypothesis Tested	$C(+) = C(-)$	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	$X(+) = X(-)$	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	$C(+) = X(+)$	---	---	---	---	---	---	---	---	---	---	---	---	---	---	Reject (5%)	---



tested with the tied (0) scores cast out as in the Sign Test. These results did not differ from those found using the above procedure of grouping.

The summary statistics and the results of testing the hypotheses are reported in Tables 2, 3 and 4 for divisions one and two and all teachers, respectively.

### *Findings*

The findings of this study can be quickly summarized:

- (1) No statistically significant differences in all pre-test scores were found between the control and experimental school teachers.
- (2) No statistically significant differences were found between the pre- and post-test scores of all eight variables for the control and experimental school teachers, with two exceptions. Division two experimental school teachers' Creativity score changes were more likely to increase from pre- to post-testing than could be attributed to chance factors in sampling alone. Moreover, the mean difference in scores for the same variable and group was found to be significant. Second, because of this difference in division two teacher Creativity scores, the total group gain difference was also found to be statistically significant.
- (3) It having been established in Hypothesis 1 that any pre-test differences between the control and experimental school teachers' scores that were found could be attributed to chance factors, it was subsequently found on all variables that the two groups' post-test scores did not differ from one another other than in that which could be attributed to chance factors.

### *Conclusions and Comments*

Given the limitations of the *Indicators of Quality Scale*, the size of the sample of teachers, the randomness of the morning observations of teaching and of classes, and the reliability of the observers themselves, there is no evidence, with one possible exception, to suggest that the availability of a teacher aide to each teacher in grades two to six will result in any observable difference in the teaching behavior of such teachers from those who do not have aides.

The exception was the division two experimental school teachers' Creativity scores. The findings of this study revealed that such scores were more likely to increase from pre- to post-testing in the experimental group than could be attributed to chance. This difference could be explained on the basis that in the conduct of such a large number of statistical tests, the likelihood that at least one difference would be found to be statistically significant is quite high. This one finding must also be viewed in the context that, notwithstanding this directional gain from one group, there remained no statistically significant difference between the control and experimental school division two teachers on this variable, either in score gain or in post-test scores. It is noted that this one statistical difference in score gains in the division two subsample also resulted in the total teacher sample difference being significant.

It can be concluded that, for administrative purposes within the limitations of this study, the presence of a teacher aide in each classroom did not result in any observable difference in teacher classroom behaviour

from that employed by teachers without aides. As to why no change occurred, the answer may lie in the earlier observations of Brickell (1964) and Gross, Giacquinta and Bernstein (1968) that when teachers are given freedom to depart significantly from their established routines, to guide and direct their own activities, and to otherwise alter their work situation through the use of aides, they typically fail to depart significantly from their established routines. The present study would add that they do not change their teaching styles, either.

<sup>1</sup> The authors would like to acknowledge the contribution of the following to this study: Joyce Alcock, Judy Campbell, Helen Crites, Robert Desjardins, Margo Herron, Greg Rudloff and Janet Telford.

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## Need for Structure, Program Openness and Job Satisfaction Among Teachers in Open Area and Self-Contained Classrooms

*Thirty-six teachers in open area classrooms and 49 teachers in self-contained classrooms completed measures of job satisfaction, need for structure and program openness. Analysis of variance was used to assess the significance of relationships between need for structure, program openness and type of facility as reflected in job satisfaction. There was no difference in program openness between open area and self-contained classrooms. Teachers in self-contained classrooms had significantly higher job satisfaction than those in open areas and teachers reporting open programs had significantly higher job satisfaction than teachers reporting closed programs. However, in both cases these differences were due to the scores of those with low need for structure. (Dr. Allen is Director of Professional Programs in the Faculty of Education; Mr. Hamelin is a school principal and Mr. Nixon is a vice-principal in the Vancouver School District. Both are graduate students in the Faculty of Education.)*

Numerous studies and reports (e.g., Open Space Project Bulletin, 1970; Allen, 1973) refer to claims that open area classrooms offer advantages for informal teaching methods such as flexible grouping, team teaching and individualizing instruction. It has also been widely assumed by teachers, administrators and researchers that teachers preferring more formal and traditional approaches to instruction will be better suited to conventional self-contained classrooms.

But in spite of these claims, evidence is conflicting. Jeffries (1971) and Lueders-Salmon (1972) found greater student activity and more individualization and small-group work in open space classrooms and Myers (1971) found open area students to be more autonomous than others in self-contained classrooms. However, Deibel (1972) found that individualization was not being achieved in open space classrooms and Warner (1971) found no significant differences between open area and self-contained classrooms



on a number of variables. In reviewing these and other studies, Martin and Pavan (1976) concluded that open space does not of itself result in real differences in learning or teaching and that innovative practices can exist in more traditional buildings.

Although some research has been done on relationships between cognitive style and school program (Hunt, 1971, 1974) there has been little systematic investigation of these variables in open area classrooms.

Most comparative research in this field has ignored variations in program openness in open area and in self-contained classrooms, making it extremely difficult to attribute results to the type of facility, the program, or to interactions of these with personality characteristics of teachers or students. In spite of this, many schools now being built include both open area and self-contained classrooms in the belief that some teachers and some students are "suited" to open areas and some are not. If this suitability can be reliably predicted it may be that teachers and students should be matched with appropriate types of program and facilities so that their personality style, the program, and the physical environment will be compatible rather than in conflict.

This study was designed to examine relationships between program openness, teachers' need for structure and type of school facility (open area or self-contained classroom). Teachers' job satisfaction was used as the dependent variable. It was predicted that teachers with low need for structure would have higher job satisfaction in relatively open programs, and in open area classrooms. Teachers with high need for structure would have greater job satisfaction in self-contained classrooms, and in relatively closed programs. It was assumed that learning would be enhanced if the school system attempted to place teachers in positions in which they were able to work effectively, and from which they would derive a high level of job satisfaction.

### *Method*

Forty-nine teachers in self-contained classrooms and 36 teachers in open area classrooms volunteered to participate in the study. All of the teachers came from 19 elementary schools which contained both open area and self-contained classrooms. The schools were in the Vancouver and Burnaby school districts in British Columbia.

The subjects completed three test instruments: a Job Satisfaction Index (Brayfield and Rothe, 1951), O. J. Harvey's Conceptual Systems Test (Harvey & Hoffmeister, 1971), and the Teacher Questionnaire (Evans, 1971; Walberg & Thomas, 1971). The Teacher Questionnaire was used as a measure of program openness, and the Need for Structure Sub-scale of the Conceptual Systems Test was used as a measure of need for structure.

Scores on the Teacher Questionnaire (Program Openness) were ranked and divided into upper and lower halves. Those in the upper half were referred to as open programs, those in the lower half as closed programs. Scores on the Need for Structure scale were similarly ranked and the sample divided into two halves representing teachers with high need for structure and teachers with low need for structure.

It was hypothesized that there would be no significant differences in job satisfaction scores between teachers with high and low need for structure,

in open area or self-contained classrooms, with either closed or open programs. The hypothesis was tested with two-way analysis of variance with differences accepted as significant at the .05 confidence level.

When an overall significant difference was found, additional comparisons were made among the groups using the LSD procedure for multiple range tests (Kirk, 1968) to determine which combinations of variables resulted in significant differences in job satisfaction.

To determine the overall effects of the major variables, job satisfaction scores of subjects scoring in the upper and lower thirds of the teacher questionnaire and of the conceptual systems test were compared using one-way analysis of variance. Job satisfaction scores of teachers in open area and self-contained classrooms were compared in the same manner. In these comparisons also, differences were accepted as significant at the .05 confidence level.

Results

A summary of the results relating to the major hypothesis is shown in Table 1. A number of significant differences were found and the hypothesis was rejected.

TABLE 1  
MEAN JOB SATISFACTION SCORES FOR TEACHERS WITH HIGH AND LOW NEED FOR STRUCTURE OFFERING OPEN AND CLOSED PROGRAMS IN OPEN AREA AND SELF-CONTAINED CLASSROOMS

	Closed Program		Open Program	
	Open Area	Self-Contained	Open Area	Self-Contained
Low Need for Structure	N = 6 71.33	N = 16 77.94	N = 10 74.20	N = 11 82.18
High Need for Structure	N = 7 75.86	N = 13 74.54	N = 11 77.73	N = 8 78.75

p < .05

Teachers in self-contained classrooms (N=48) had significantly higher job satisfaction scores (78.08) than teachers in open area classrooms (75.17; N=34; p < .05). However, the results shown in Table 1 suggest that the differences could be entirely explained by variations in scores for teachers with low need for structure.

Teachers reporting open programs had significantly higher job satisfaction scores than teachers reporting closed programs [Upper third (N=31): 78.81. Lower third (N=28): 74.75; p < .05]. In these comparisons also, the effect could be attributed to those with low need for structure (see Table 1).

When the multiple range test was used to test the significance of the differences in mean job satisfaction scores in various cells, no significant differences were found among teachers with high need for structure. Among teachers with low need for structure, those in self-contained classrooms had higher job satisfaction scores than those in open areas whether programs were open or closed; in both open area and self-contained classrooms, teachers with open programs had higher job satisfaction than teachers in closed programs.



There were no overall differences between teachers with high and low need for structure. However, as Table 1 indicates, there were some consistent tendencies which might well be investigated in further studies even though the differences were not significant at the .05 level on the multiple range test. Teachers in open area classrooms with high need for structure had higher job satisfaction scores than teachers in open area classrooms with low need for structure. Teachers in self-contained classrooms with high need for structure had lower job satisfaction scores than teachers in self-contained classrooms with low need for structure.

### *Discussion*

In spite of the relatively small size of the sample, this study suggests a number of clear and consistent relationships between need for structure, program openness and type of classroom. These may be summarized as follows:

- (a) Teachers with low need for structure derive greater job satisfaction in self-contained classrooms than in open areas.
- (b) Teachers with low need for structure derive greater job satisfaction in open than in closed programs.
- (c) Teachers with low need for structure are affected to a much greater extent than teachers with high need for structure by type of classroom and nature of program. They have their highest job satisfaction when working with an open program in a self-contained classroom, and their lowest job satisfaction when working with a closed program in an open area.

This casts further doubt on the general claims of advantages of open areas for informal teaching methods. On the other hand, it was noted that there was very little difference between open area and self-contained classrooms on program openness. The mean score on the teacher questionnaire for open areas was 140.07 compared with 139.65 for self-contained classrooms. These figures should be compared with mean scores on the same instrument of 160.80 and 167.17 for British and American "open" programs and of 117.46 for American "closed" programs in a study conducted by Evans (1971). This raises the question of whether teachers have been adequately prepared to use the instructional procedures for which open areas are supposed to have been designed. It is possible that if these procedures were understood and used, job satisfaction in open area classrooms might be higher.

Another possible explanation for the relatively low job satisfaction among open area teachers with low need for structure is that they may have difficulty in situations which require careful coordination and teaming. This interpretation would be consistent with their higher job satisfaction scores in self-contained classrooms where creative teaching and last minute decisions would not interfere with the activities of others.

These interpretations and the results themselves must be considered in the light of several factors which limit their generalizability. First, the sample was not large and consisted of volunteers from only two school districts in the lower mainland of British Columbia. Second, the sample was relatively homogeneous on Program Openness and the results may



well have been different with a wider distribution of scores. These two limitations suggest the desirability of replicating the study with a somewhat wider sample. Third, job satisfaction should not be taken as a direct indicator of the quality of children's education, although there are some grounds for believing it may be related. Fourth, the results relate to the schools as they are presently operating and not to their potential. It is quite possible, for example, that open area classrooms might yield higher job satisfaction if teachers received special training in the teaching techniques for which they are supposed to be designed.

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## Auditory Discrimination and Nonstandard Dialect: A Newfoundland Example

*Two sets of word pairs were produced, one set (DH) consisting of pairs which were contrasts in their standard pronunciation but which were homonyms in their dialect form, the other set (DC) consisting of pairs which were contrasts in both forms. These were then administered as an auditory discrimination task to a group of 48 dialect-speaking first graders and to a group of 48 standard English-speaking grade one pupils. For both groups the DC items were discriminated significantly better than the DH items. However, the difference scores (DC-DH) of the dialect-speaking subjects were significantly greater than those of the control group. It was concluded that dialect speech did interfere with the auditory discrimination of standard English speech sounds. (Dr. Walker is Assistant Professor of Education, Mount St. Vincent University, Halifax.)*

Life in a Newfoundland outport fishing village would seem to be the very antithesis of life in an American inner-city. Yet two educationally relevant parallels appear to exist: in both there is a concern about a low level of reading skill development and in both a distinctive nonstandard dialect of English is spoken. Currently, if one can judge from educational literature, many educators are intrigued by the possibility that, in the case of inner-city black children, there exists a causal relationship between the two factors. The present study involving one aspect of the relationship between the two factors in a Newfoundland setting, is reported here in the hope that, as well as being a small contribution to the study of reading education in one part of a Canadian province, it may help confirm and generalize some research findings that have resulted from the study of black dialect.

### *Auditory Discrimination and Nonstandard Dialect*

In spite of a rather large volume of research into the effects of black dialect on learning to read, the hypothesis that this particular nonstandard dialect interferes with the process of learning to read has received little

empirical support. Inverse correlations between reading achievement and density of dialect usage in speech were revealed in studies by Gross (1967 in Hunt, 1974-5), Johnson (1970) and Wiggins (1970), but the nature of this relationship remains unclear. Other studies have failed to demonstrate an interference effect from dialect upon oral reading, either in the case of black dialect (Simons & Johnson, 1974) or in the case of the Newfoundland dialect (Walker, 1975), while similar results have been obtained in studies involving reading comprehension (Melmed, 1970; Hall & Turner, 1974). These results do not contradict the conclusions of Labov (1972) that the effects of black dialect are not structural interference in learning to read but rather the expression of a wider cultural conflict between black, inner-city children and the middle class values of their schools. However, the findings of these studies perhaps indicate that research should shift its focus from the investigation of relationships between dialect and the larger components of reading such as oral reading and comprehension. It might be more productive to search for the mechanisms by which nonstandard dialect speech could impede the acquisition of reading skills, through an exploration of its effects upon underlying auditory, visual and linguistic skills related to aspects of the reading process.

One such underlying skill is auditory discrimination, the ability to perceive differences between speech sounds, which has been shown to be significantly related to reading achievement (Dykstra, 1966). This perceptual ability underlies the learning of decoding skills through the phonics component of a reading program. Phonics refers to the relationships between letters or letter combinations and the phonemes of a language. To learn phonics as a functional word recognition strategy is a matter of learning to associate the appropriate phoneme category with a particular letter or letter combination as it is encountered in an unfamiliar printed word. Phonemes appear to have no definitive physical identity, but are rather psychological categories which include a range of phonetic variations. For example, the phoneme category /p/ includes the different allophones of /p/ that occur in the words "pot" "spot" and "stop". Also, since each phoneme is the result of a particular pattern of articulatory activity, some phonemes are distinguished from each other by quite small articulatory differences as are, for example, /b/ and /p/ merely by the presence or absence of voicing. As a result of this somewhat arbitrary nature of the phonemic system, it cannot be assumed that, because a child can use oral language effectively, phonics is simply a matter of matching a known sound with an unfamiliar letter; it may be a matter of having to learn the conventional phoneme categories by learning to distinguish one from another, followed by the association of these newly-identified auditory categories with appropriate graphemic symbols. In this sense, auditory discrimination as a developmental skill is a prerequisite for successful phonics learning.

There is evidence that the ability to distinguish speech sounds is a function of the pattern of phonemes that are used in the listener's own speech production (Lado, 1961, p. 14). Theoretically this would arise from the fact that a person's phoneme categories, derived from his usual speech environment, serve his own speech production and act as a filter through which the speech of others is perceived. Speaking of the question of how



perceptual mechanisms cope with speech signals, Cooper (1972) wrote: "The central theme of most current attempts to answer that question is that perception somehow borrows the machinery of production" (p. 36). This theoretical position would predict that people would have difficulty perceiving contrasting phonemes in a language or dialect if they did not possess the same set of contrasts in their own speech production. For example, a speaker who did not contrast the pronunciation of "deaf" and "death," because in his speech /f/ and /θ/ belonged to a single phoneme category, would predictably have difficulty hearing the difference between these two words as spoken by a standard English speaker. Consequently one mechanism of dialect interference in learning to read may lie in the relationships between dialect phonology, auditory discrimination of standard English speech sounds, and phonics learning.

Some research shows that black dialect speech impedes the ability to auditorily discriminate sounds of standard English speech. Melmed (1970) designed a task to measure auditory discrimination in a sample of grade 3 students, some of whom were black dialect speakers and some standard English speakers. Each word of pairs of dialect homonyms like "toe" and "told" was illustrated by a picture. The subject was required to select one picture in response to a spoken sentence containing one of the pair of homonyms. It was found that there was a significant difference between the two groups favouring the standard English speakers, indicating that the black children made a greater number of auditory discrimination errors. The conclusion from this study was that black dialect speech did interfere with auditory discrimination of standard English speech. Gottesman (1972) reached a similar conclusion from her study of a sample of black grade one children. She used a minimal pairs test containing two kinds of contrasts: pairs which were contrasts in both standard English and black dialect and pairs which were contrasts in standard English but homonyms in black dialect. The findings were that black dialect speakers had significantly lower scores than standard English speakers on the dialect homonym pairs, but that there were no differences on the pairs that were contrasts in both dialects. Hutchinson (1972) deleted items from an auditory word discrimination test which she felt were prejudicial to black dialect speakers. She claimed that these deletions raised the grade scores of black students who took the test. However, Karlsen (1972), one of the original authors of the test in question, disputed Hutchinson's findings. He later collaborated on a study of black children's ability to discriminate words ending in consonant clusters which are subject to reduction in black dialect speech (Karlsen & Blocker, 1974). The findings were reported as indicating no interference from black dialect on auditory discrimination of this feature in standard English speech.

#### *A Study of Dialect and Auditory Discrimination in Newfoundland*

As far as black dialect is concerned the evidence seems to indicate that nonstandard dialect speech can interfere with the ability to distinguish between certain sounds as they occur in standard English pronunciation. The present study was an attempt to secure data relevant to this question as it applies to another nonstandard dialect, that spoken in one part of the province of Newfoundland, Canada.

As a result of historical and geographical factors, a distinctive regional dialect of English is spoken in parts of this province, and the dialect has been studied and described as it currently survives in selected communities (Paddock, 1966; Noseworthy, 1971) and in selected areas (Paddock, personal communication.) The phonological, grammatical, and lexical features of this dialect can be discerned in the speech of many school children, especially those in more isolated, rural communities. A dialect is defined as one variety of a language which is distinguished by certain formal characteristics from other varieties of the same language (Hasan, 1973). These formal characteristics are phonological, grammatical, and lexical features which correlate in a non-causal manner with extralinguistic geographical or social factors. The dialect involved in this study is the variety of English spoken in the area of the northeast coast of Newfoundland. It is referred to as "nonstandard" in the sense that it contrasts in certain definable, formal ways with the variety of English which is generally spoken by educated, influential people in Newfoundland society. However, the two terms "nonstandard dialect of the northeast coast of Newfoundland" and "standard English" are used as rather broad generalizations. Within each, further variations according to community and social class may be present. Also, dialect usage varies within an individual's speech as a function of style which in turn is dependent on variables present in the communication situation. As a result, any one nonstandard speaker, like any other speaker, has a range of speech styles, some of which may be quite saturated with features of the nonstandard dialect and some of which possess relatively few such features. This complexity of dialect usage, both between and within individual speakers, which was not controlled for in this study should be recognized as a limitation.

*Selected phonological features of the dialect<sup>1</sup>*

The strategy of the study was to devise an auditory discrimination task using two kinds of minimal pairs: pairs that were contrasts in standard English but homonyms in the local dialect (DH) and pairs that were contrasts in both the dialect and standard English (DC). The DH pairs were derived from selected phonological features of the dialect which distinguish it from standard English. Some of these features are rules which apply widely within the phonological system, while others appear to be restricted in their application to particular sets of lexical items.

1. *Consonant neutralization*

- a. interdental fricatives /θ/ and /ð/ become alveolar stops /t/ and /d/ respectively producing homonym pairs of "thick" - "tick", "both" - "boat", "then - den", and "lather" - "ladder."
- b. segmental /h/ does not function as a phoneme in the dialect. It may be omitted from words like "house" and "holy", and for what are probably suprasegmental reasons it may appear at the beginning of words like "ice" and "apple". As a result "howl" and "owl" would not be distinguished in the dialect.

2. *Dependent vowel neutralization before /r/.*

- a. the high back vowel /uw/ becomes a mid back vowel /ʌ/ so that "moor" and "more" are homonyms in the dialect.



- b. the high front vowel /iy/ becomes a mid front vowel /e/ so that “beer” and “bare” are homonyms.
  - c. the low back vowel /ɔ/ becomes a low front unrounded vowel /æ/ especially when /r/ is followed by a nasal as in “born”, “form” and “morning”. This produces the homonyms “born” - “barn”.
3. *Dependent vowel neutralization before /l/.*
- a. the high back lax vowel /u/ becomes a high back tense vowel /uw/ in some words producing the homonyms “pull” and “pool”.
  - b. the high front lax vowel /I/ becomes a high front tense vowel /iy/ in some words. This results in the homonym pair “fill” and “feel”.
  - c. the mid front long diphthong /ey/ becomes a mid front short steady vowel /e/ in some words resulting in a homonym pair “sail” and “sell”.
  - d. the high front lax vowel /I/ becomes a mid front lax vowel /e/ in some words resulting in the homonym pair “will” and “well”.
4. *Independent vowel neutralization*
- a. the low and mid diphthongs /ɔy/ and /ay/ become /ɛy/ resulting in homonyms of “boy” and “by”.
  - b. in some words the high back lax vowel /u/ becomes a mid back lax vowel /ʌ/. As a result “look” and “luck” are homonyms.
  - c. the mid front lax vowel /e/ becomes a high front lax vowel /I/ in most phonetic contexts. As a result “mess” and “miss” are homonyms.

#### *Auditory Discrimination Test*

Each of the 15 DH items listed above as examples was paired with a DC item which was similar in terms of a number of phonemes and type of auditory contrast except that the contrasts applied to the dialect pronunciation as well as to standard English pronunciation. (Both sets of items are shown in Table 1.) A fourth set of 10 identical pairs of words (P) was drawn up and the total of 40 pairs (DH, DC, and P) was then randomly ordered and taperecorded by a female standard Canadian English speaker. The two words in each pair were spoken once in a distinct voice with an intervening one-second pause. The tape recording was tested with two adolescent piano students whose auditory discrimination ability was felt by their teacher to be well developed. Each one correctly identified the pairs that were the same and different so that it was clear that the 30 items intended as contrasts in standard English were indeed distinguishable as recorded.

#### *Sample*

Ninety-one grade one children from six elementary schools in the Carmanville and Fogo districts of the Terra Nova Integrated School Board were tested. Employment in the area is mainly provided by the inshore fishing industry, logging, and small local service industries. These homogeneous and stable communities are small and isolated especially in Fogo which is an island linked by a daily ferryboat to the mainland and maintaining a total population of some 6,000 people. Of the 91 children tested, a small number were excluded because of hearing or articulation



defects, two were excluded because they had been born outside the district, while a considerable number were excluded because they failed to reach a criterion of nine correct identifications of the ten P items in the test. It was felt that children who made more than one error on the identical pairs were not presenting a reliable auditory discrimination performance. After these exclusions the final sample consisted of 48 children, by chance 24 girls and 24 boys. This sample represented the "dialect group."

The design of the study required a control group of standard English-speaking children. The source of this control group was defined as the population of grade one children attending schools within the city of St. John's who had been born in an English-speaking province outside Newfoundland or in an English-speaking country outside Canada. A total of 71 such children was tested. Five were eliminated from the sample through failure to achieve nine out of ten on the P items of the test. From the balance a random selection of 24 girls and 24 boys was made for a total of 48 subjects. Generally speaking, the socioeconomic level of the control group's background was higher than that of the experimental dialect-speaking group. This control sample is referred to as the "standard English group."

#### *Data collection*

The test was administered to small groups of six to eight children at a time using spare rooms or space in the schools. The group administration required the use of an answer sheet in the form of "happy faces" and "sad faces", one each per test item. The children were asked to mark the happy face if they heard two words that sounded the same and the sad face if they heard two words that sounded different. The test items were preceded by four practice items. A pilot study had indicated that almost all children appeared to enjoy the task and appeared to have no difficulty with the testing format. The data were collected from both groups in the month of March, 1975, by the present writer.

#### *Hypotheses*

1. There will be no significant difference between the auditory discrimination scores of the dialect group on DH and DC items.
2. There will be no significant difference between the auditory discrimination scores of the standard English group on DH and DC items.
3. There will be no significant difference between the auditory discrimination scores of boys and girls in the dialect group on either DH or DC items.

The major interest of the study was in hypothesis 1. However, it was necessary to show that the two sets of items on the auditory discrimination test were of equivalent difficulty in all respects other than their dialect base. Hypothesis 2 was designed to serve this purpose since the absence of significant differences between the two scores of the control group would indicate equivalent discriminability of DH and DC items and would indicate confidence that any observed difference under the first hypothesis could be attributable solely to the independent variable, dialect. The data were analyzed statistically using two-way analysis of variance with repeated measures, sex x dialect.

Findings

Hypothesis 1 stated that there would be no significant difference between the DH and DC scores of the 48 subjects in the dialect group. With a possible score of 15 in each case, the DC mean was 12.06 with a standard deviation of 1.60 and the DH mean was 7.67 with a standard deviation of 2.24 ( $F = 239.99$ ;  $df = 1.46$ ;  $p < .00001$ ). The first hypothesis was rejected.

Hypothesis 2 stated that there would be no significant difference between the DH and DC scores of the 48 subjects in the standard English group. In this case the DC mean was 14.10 with a standard deviation of 1.31 and the DH mean was 12.56 with a standard deviation of 2.44 ( $F = 38.82$ ;  $df = 1.46$ ;  $p < .0001$ ). The second hypothesis was also rejected.

Hypothesis 3 referred to sex differences in the dialect group. In the case of both DC and DH items the means were very close — boys: DC = 12.50, DH = 7.46; girls: DC = 12.71, DH = 7.88 ( $F = .43$ ;  $df = 1.46$ ;  $p < .51$ ). The third hypothesis was not rejected.

TABLE 1  
DISCRIMINABILITY OF DH AND DC PAIRS DERIVED FROM SELECTED  
PHONOLOGICAL FEATURES OF THE NONSTANDARD DIALECT OF THE  
NORTHEAST COAST OF NEWFOUNDLAND

phonological feature	homonym pair	A. D. error score		contrast pair	A. D. error score	
		Dialect SE			Dialect SE	
1. $\theta \rightarrow t$	thick tick both boat	12	3	tick Dick road wrote	8	1
		46	20		13	2
2. $\int \rightarrow d$	then den lather ladder	23	2	den ten rubber rudder	10	4
		45	15		47	20
3. $h \leftrightarrow zero$	howl owl	33	2	owl fowl	6	1
4. $uw \rightarrow \wedge/--r$	moor more	37	28	tar tore	6	0
5. $iy \rightarrow e/--r$	beer bare	34	9	wear wire	4	0
6. $\text{ɔ} \rightarrow \text{æ}/--r$ in some words	born barn	13	0	born burn	5	0
7. $u \rightarrow uw/--l$ in some words	pull pool	35	12	pull pill	2	1
8. $I \rightarrow iy/--l$ in some words	fill feel	13	1	feel fail	11	2
9. $ey \rightarrow e/--l$ in some words	sail sell	11	0	sell seal	3	0
10. $I \rightarrow e/--l$ in some words	will well	23	5	fell file	2	1
11. $\left\{ \begin{matrix} \text{ɔy} \\ \text{ay} \end{matrix} \right\} \rightarrow \text{əy}$	boy by	10	0	bay boy	2	0
12. $u \rightarrow \wedge$ in a few words	look luck	5	0	luck lock	14	5
13. $e \rightarrow I$ in most words	mess miss	22	5	moss mess	1	0

Since the rejection of the second hypothesis indicated that the two sets of items on the test were not of equivalent difficulty, the DH items being apparently intrinsically more difficult than the DC items, a further hypothesis was tested. This stated that the difference between the DC and DH scores of the dialect group was not significantly greater than the differences between the DC and DH scores of the standard English group. One subject from each group had to be eliminated to test this comparison because of DH scores that were higher than their DC scores. For the great majority of subjects, the difference favoured the DC scores while for a small number the two scores were equal. It is recognized that this analysis was weaker than desirable since using the difference between two scores would tend to compound any errors of measurement. This hypothesis was tested using two-way analysis of variance, sex x dialect. The mean difference score for the dialect group (DC - DH) was 5.05 and for the standard English group, it was 1.55 ( $F = 81.04$ ;  $df = 1,90$ ;  $p < .0001$ ). This supplementary hypothesis was, therefore, rejected. The effect due to sex was not significant ( $F = .02$ ).

Examination of the two sets of scores on the individual DH items showed considerable variation between the discriminability of different pairs of dialect homonyms. This information in the form of total error scores by the dialect and standard English groups is contained in Table 1. It seemed that the "both" - "boat", "then" - "den", "lather" - "ladder", "moor" - "more", "beer" - "bare", "pull" - "pool", "well" - "will", and "mess" - "miss" pairs produced the highest number of discrimination failures in the dialect group. In the case of the "both" - "boat", "lather" - "ladder", and "moor" - "more" pairs, a considerable number of the standard English group also failed to make the discrimination. The "look" - "luck" pair was discriminated by almost everyone in the dialect group and several other pairs produced relatively low error scores. Among the DC items the "rubber" - "rudder" pair proved to be a difficult contrast to distinguish, all but one of the dialect group failing as well as a large number of the subjects in the standard English group. All other DC items were well discriminated by the standard English group, while a few produced relatively high error scores in the dialect group.

### *Discussion*

Clearly the grade one children living in this rural area of Newfoundland were able to auditorily discriminate pairs of words that were homonyms in their dialect less easily than pairs of words that were contrasts in their dialect. To some extent this was probably due to the fact that these dialect homonyms as a group were more difficult to discriminate than the set of dialect contrasts used in the study. However, the magnitude of the difference between the scores of these children on the two sets of pairs, together with the fact that this difference was significantly greater than that between the scores of the standard English group, can safely be regarded as evidence of an interference effect from a nonstandard dialect on the auditory discrimination ability of the sample employed in this study. The findings support those of Melmed (1970) and Gottesman (1972) that a similar relationship existed in the case of black dialect.

However, the pattern of error scores on the test items showed that



dialect does not operate on auditory discrimination in isolation from other factors such as perhaps the acoustic differences involved in the sounds to be discriminated. When acoustic differences are small as in the case of "both" - "boat", "lather" - "ladder", and "beer" - "bare", dialect appears to have a strong screening effect on auditory discrimination. In cases like "look" - "luck" and "sail" - "sell", the acoustic difference in standard pronunciation is perhaps great enough to counteract the dialect screen. The conclusion of this study should be modified to acknowledge that, while a general interference effect from this Newfoundland dialect appears to operate on grade one children's ability to distinguish sounds which are not contrasted in their own speech, this interference interacts with other factors such as, perhaps, intrinsic acoustic similarity. Thus the interference effect is not uniform, but applies more strongly to some contrasts than to others.

### *Implications*

The significance of the finding is that first of all it is an indication that the effects of dialect on auditory discrimination are not specific to one nonstandard dialect, namely black dialect, but apparently generalizable to other dialects whose phonology diverges from that of standard varieties of speech. Secondly, the fact that distinctive phonological features of the Newfoundland dialect can act as a screen preventing the perception of certain sound differences between pairs of words presented in isolation is of some importance at least to primary teachers of nonstandard Newfoundland dialect-speaking children. It may well be that some such children are being taught that some letters have one sound and other letters have another, whereas, in fact, the sounds are the same to the children. Such might be the case for /θ/ and /t/ or /ʒ/ and /d/. It may also be that some children are being required to learn the short sounds of "a", "e", and "i", examples of sounds which, in their speech, do not consistently signal contrasting morphemes in the same way that they do in standard English dialects. In other words, if phonics is taught within a standard English phonological framework, it should not be assumed that nonstandard dialect speakers in Newfoundland are in all cases being simply required to match an unknown letter with a known and distinctive sound. It may well be that the teaching of certain sensitive phonics elements should be preceded by a considerable amount of listening activities to promote auditory discrimination so as to avoid potential confusion and frustration. For the northeast coast of Newfoundland this study has indicated which elements appear to be most sensitive in this respect.

Another implication arising from these findings applies to the use of standardized auditory discrimination tests in Newfoundland and presumably in other areas where a distinctive dialect is spoken. Considerable caution ought to be exercised in the interpretation of scores obtained on tests like the *Wepman Test of Auditory Discrimination* and the word discrimination subtest of the *Stanford Diagnostic Reading Test*, Primary I. Some items on both of these tests involve phonological features that are sensitive to interference from the Newfoundland dialect, a fact which should be considered when these tests are used as part of diagnostic evaluations of children who speak the local dialect.

<sup>1</sup>The author would like to acknowledge with gratitude the help of Dr. Harold Paddock, Department of Linguistics, Memorial University of Newfoundland, in identifying and describing these phonological features. Responsibility for their accuracy, however, rests solely with the author.

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## Inquiry Training and Elementary Language Skill Development

*Treatment and control groups consisting of 135 grade five students were used to examine the influence of inquiry training upon reading and listening skill development. The writers conclude that in order to be of value, inquiry training needs to be both long-term and specific to the language mode. (Ms. Briggs is Vice-Principal, Jarvis Elementary School in Delta, B.C. and Dr. Evanechko is Associate Professor of Education, at the University of Victoria.)*

Although most elementary school children understand the concepts of question and answer and are skilled in their use of language, they seldom ask, in school, thought-provoking questions requiring the higher-order cognitive behaviours of organization, inference, evaluation, or appreciation. Blank and Covington (1965) suggested that this deficiency might be due in part to a lack of question-asking practice or training. Since Suchman (1962) had found that training children to develop specific questioning behaviours resulted in their asking more questions than did children not trained in these behaviours and since, at the time of treatment, there was no acceptable measure of the quality of the thought content of the questions asked, the present study did not attempt to determine whether or not the children's ability to ask questions increased or improved as a result of the treatment. It was, instead, an attempt to evaluate the effect of inquiry training on listening and reading skill development by providing students with experiences which encouraged question-asking in a variety of language contexts, and by measuring their achievement before and after training.

### *Theoretical Assumptions and Postulates*

The theoretical framework for this study postulated that the ability to use language for inquiry purposes was contingent upon the perception of



unusual stimuli and upon the arousal and consequent reduction of conceptual conflict resulting from that perception. The assumptions of the study included the following statements.

1. Curiosity is characteristic of elementary school children.
2. The perception of unusual stimuli may lead to inquiry behaviour.
3. Inquiry behaviour is a complex of behaviours which can be identified for instructional purposes.
4. Asking questions which lead to the discovery of ideas new to the learner is self-rewarding and self-motivating.
5. Question-asking strategies vary according to the needs of the individual and the task.

### *Procedures*

#### *Problem*

The general purpose of this study was to evaluate the effect of inquiry training upon the reading and listening skills of grade five children. The specific skills measured were:

1. basic reading vocabulary
2. reading for information
3. reading for relationships between ideas
4. reading for interpretation of material
5. reading for appreciation of material
6. literal comprehension of material
7. use of creative and imaginative reasoning in reading
8. general reading comprehension
9. listening for literal comprehension of material
10. listening for interpretation of material
11. listening for application and evaluation of material
12. general listening comprehension

#### *Hypothesis*

Since there was a lack of corroborating research data, a general hypothesis was assumed, and was stated in the null form: As a result of inquiry training, there will be no significant differences between the reading and listening test scores of the treatment group and the control group.

#### *Sample*

The subjects consisted of six heterogeneously-grouped grade five classes from six different schools in Delta, British Columbia, 135 students in all. The classes were randomly selected from the population of heterogeneous grade five classes, and randomly assigned to one of two groups: treatment (69 students) or control (66 students). Randomization procedures were assumed to be adequate control for the following variables: intelligence, sex, socioeconomic status, academic ability, educational background, type of school, and type of organization for instruction.

#### *Instrumentation*

*Reading.* The *Bond-Balow-Hoyt New Developmental Reading Test*, forms A and B, intermediate level (BBH) measured the student's basic reading vocabulary and his ability to read for information, relationships,

interpretation, and appreciation. Summed scores on reading for information and relationships gave a measure of literal comprehension ability. Summed scores in interpretation and appreciation gave a measure of ability in the use of creative and imaginative reasoning in reading. Summed scores for the last four subtests gave a measure of general reading comprehension.

*Listening.* The *Sequential Test of Educational Progress: Listening*, forms 4A and 4B, intermediate level (STEP) gave a measure of the student's ability to comprehend, interpret, evaluate, and apply what he heard.

### *Design*

The design of this study was ordered so as to permit measurement to be taken of the possible effects of inquiry training on reading and listening skills in a language arts context. Since one of the major aims of education is to enable each student to increase his proficiency in language reception, it was postulated that if inquiry training influenced skill development, it would be an effective teaching strategy and that pre- and post-scores of subjects would provide an estimate of the efficacy of this training over a five-week period.

Accordingly, the research design was a pre-test, post-test, retention-test design. Pre-tests were administered in February, post-tests in April, and retention tests in June. Every attempt was made to maintain identical testing conditions during the testing sessions in order to assure equivalence.

The treatment consisted of 25 forty-minute lessons on questioning techniques prepared by the investigator. The three classroom teachers in the treatment group administered one lesson per day. All lessons were completed during March and early April. The students in the control group continued with their regular programme. No additional time was devoted to language arts during the experimental programme, the treatment procedures being presented in lieu of the conventional language development activities.

### *Organization of the Inquiry Unit*

*Unit Outline.* A unit outline was provided for the teachers. It included a statement of the major principles, the questioning strategies to be studied, and the activities, approach, evaluation, and extent of the unit. General instructions, lesson sequences, and testing schedules were also included. A summary of this outline follows.

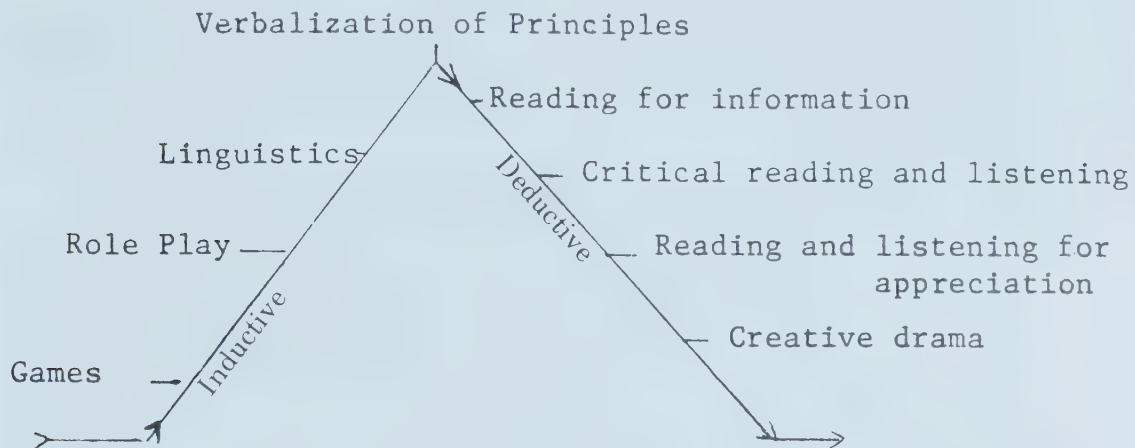
#### Unit Outline

A. This unit was based on these principles:

1. Each learner should develop personal inquiry strategies; i.e. he may seek information from people, from printed material, or from non-print material.
2. Each learner should realize that the answer he gets depends on the question he asks; i.e. does he want facts, instructions or opinion?
3. He should realize that strategies of inquiry may be productive of a variety of answers, not any of which may be absolutely correct.

4. He should also realize that not all questions will be answered immediately.

B. The model for this unit was an inductive-deductive one.



C. Selected inquiry strategies were presented in sequence. Each learner had the opportunity to develop and practise these strategies. They include:

1. the formulation of yes/no questions directed towards the teacher or another child,
2. the formulation of relevant information-seeking questions in a variety of situations directed towards the teacher, another child, or the self,
3. the study of the SQ3R strategy for use when reading factual prose,
4. the development of the ability to listen with an open but skeptical mind, and
5. the study of the evaluative and appreciative uses of questioning when listening to or reading imaginative prose or poetry.

D. Teaching-learning activities included:

1. guessing games involving concrete objects, sound effects, role play and creative dramatics,
2. a scientific inquiry, as linguists, investigating a specific lexicon,
3. a critical examination of factual materials, and
4. an evaluative and appreciative examination of imaginative prose and poetry.

E. The approach used was largely oral and informal. Grouping was flexible.

F. Evaluation by standardized test was for the purpose of ascertaining the effect of this unit on reading and listening skill development, and was for the information of the teacher concerned and the investigator, not for the student. No grades or marks were to be given to the student. The evaluation of individual question-asking ability was done immediately the questions were asked, orally, informally and positively. Criteria for the evaluation of the quality of students' questions were taken from the Barrett-Clymer Taxonomy (1968): comprehension, reorganization, inference, evaluation, appreciation.



1. Comprehension focussed on explicitly stated ideas and information. Questions at this level seek the recognition or recall of facts and events.

Example: Who ate the most porridge?

2. Reorganization required the analysis, synthesis, and organization of explicitly stated ideas and information. Questions at this level involve the skills of classifying, outlining, summarizing and synthesising.

Example: What important events happened in the story?

3. Inference required that the individual use his own experiences and intuitions to consider explicitly stated ideas and information when theorizing or hypothesizing to solve a problem. Questions at this level may be the result of convergent and/or divergent thinking.

Example: If the man had not run away from the police, what might have happened to him?

4. Evaluation required judgment. Questions at this level involve comparison of ideas, accuracy of information, and differentiation between fact and opinion and between reality and fantasy.

Example: Have I all the information I need to build the model?

5. Appreciation required an intellectual and emotional interaction between the student and the material he is exploring. Questions at this level identify the student with a character, a point-of-view, or a cause.

Example: If I am to play that role, how should I behave?

#### *Lesson format and sequence.*

a) Notes provided essential background material, definitions, examples, and directions. b) Performance objectives stated desirable observable outcomes. c) Required materials were listed. d) Skills needed to participate in the activities and to realize the objectives were listed. e) Detailed instructions provided guidance for implementing open-ended, divergent class activities. f) The method for evaluating attainment of the objectives was described.

Lesson sequence was determined on the basis of five generalizations which state that the growth of competence in language, and consequently in question-asking, proceeds from oral to written, fluent to controlled, specific to general to applied, concrete to abstract, simple to complex.

To ensure that the treatment was followed as designed, the investigator visited each teacher three times during the 25-day treatment period. Discussions during these visits centered on the progress of the lessons, the problems encountered, and the observations made by the teachers. No insurmountable difficulties were noted. To maintain equivalence between the control and treatment groups, the investigator also visited the control classes three times.

A summary of the treatment unit follows.

1. comprehension      2. reorganization      3. inference      4. evaluation  
5. appreciation

Lesson Numbers	Title of Lessons	Major Objectives	Sample questions asked by students (Taxonomy level of questions)
1-3	Yes-No Games	By playing guessing games, each student attempts to develop an effective strategy for identifying an object or person.	Is it made of wood? (1) Is it used as decoration? (2,3,4)
4-9	The Speech Community	By gathering, compiling and evaluating data on speech patterns unique to neighbouring children aged twelve years and younger, each student practises, at a simplified level, some of the skills used by a linguist examining the lexicon of a given speech community	What do you call "spaghetti"? (1) If you're really happy about something, what do you say. (1) How will I organize this information? (2)
10-11	Consideration of Basic Question-asking Principles	By using and identifying different question-asking strategies used by himself and others, each student considers the basic principles of question-asking.	What does she want to know? (1) Did the people you asked tell you what you wanted to know? (4,5)
12-13	The SQ3R approach to Reading for Information	By using Survey-Question-Read-Review-Revise (SQ3R) techniques, each student practises asking information-seeking questions about factual material.	Who is in the picture? (1) Why was he killed? (3)
14-15	Critical Reading and Listening	After having read and listened to two dissimilar accounts of the same incident each child practises asking questions which require him: 1) to compare and contrast information and 2) to probe for completeness, authenticity, and bias of information	Why are these two stories about the same thing different? (4) Which one is right? (4) How can we find out for sure which is right? (4,5)
16-19	Appreciation of Theme and Archetype in Literature	After having read given selections of prose and poetry, each student interacts with the material by asking questions demonstrating self-involvement.	If I saw a machine creature, how would I describe it? (5)
20-25	Creative Drama	By participating in the dramatization of a myth requiring the creation of dialogue and action appropriate to the characters and events given, each student practises self-involvement with a character, cause, or point-of-view which is not his own.	How can I act losing my head? (5) How did you feel when you ran away from the stranger? (5)

*Analysis and Results*

It should be reiterated that the treatment given was evaluated according to its effect on reading and listening skill development. There was, therefore, no attempt to measure objectively the children's ability to ask questions; however, the teachers' subjective comments, both oral and written, indicated that they had noted increased questioning behaviour in their classes.

Three analyses were conducted: an analysis of variance, an analysis of covariance, and correlational analysis.

Analysis of Covariance

Since the one-way analysis of variance revealed initial significant differences favouring the treatment group in pre-test achievement, and since a slight but not significant difference also favouring the treatment group was observed for socioeconomic status, analysis of covariance using pre-test achievement and socioeconomic status as covariates was applied to the data to adjust the means. The results of this analysis are shown in Table 1.

TABLE 1  
ANALYSES OF COVARIANCE OF THE EFFECTS OF INQUIRY TRAINING  
UPON READING AND LISTENING SKILLS: TREATMENT (N=69) AND  
CONTROL (N=66) GROUPS (df=1/132)

	Pretest/SES as Covariates Posttest as Criterion				Pretest/SES as Covariates Retention Test as Criterion			
	<u>Adjusted Means</u>		F	P	<u>Adjusted Means</u>		F	P
	Treatment	Control			Treatment	Control		
<u>Reading</u>								
1. Vocabulary	22.15	24.03	3.41	.07*	29.38	32.39	5.43	.02**
2. Information	14.66	15.10	.28	.60	14.34	13.10	1.64	.20
3. Relationships	10.64	9.94	.88	.35	12.25	12.76	.44	.51
4. Interpretation	9.04	10.26	2.96	.09*	10.43	11.30	1.03	.30
5. Appreciation	10.99	12.32	2.61	.11	13.08	14.02	.85	.39
6. Literal								
Comprehension	25.21	25.13	.01	.93	26.44	26.00	.11	.74
7. Creative								
Reasoning	19.89	22.72	5.74	.02**	23.28	25.45	2.30	.13
8. General								
Comprehension	44.84	48.12	3.74	.06*	49.38	51.80	1.16	.28
<u>Listening</u>								
9. Literal								
Comprehension	21.60	20.76	2.36	.13	25.26	24.11	4.12	.04**
10. Interpretation	26.42	26.55	.04	.83	22.29	21.48	2.09	.15
11. Evaluation and								
Application	11.48	11.52	.01	.92	13.14	12.76	.80	.37
12. General								
Comprehension	56.67	56.41	.06	.81	60.40	58.61	2.59	.11

\*  $p \leq .10$

\*\*  $p \leq .05$

*Treatment Group.* Significant differences in favour of the treatment group were found in the retention test for literal comprehension in listening ( $p \leq .05$ ). Inquiry training was largely oral so it seems logical that it would affect the least complex listening skill first. Listening and reading are considered to be parallel language reception skills; however, listening skill development is considered to precede reading skill development. At the grade five level, most children learn more through listening than through reading.

*Control Group.* Significant differences ( $p \leq .05$ ) favouring the control group were found in post-test scores in the use of creative reasoning in reading and in retention test basic reading vocabulary scores.

Examination of Table 1 reveals that the control group showed continuing improvement in basic vocabulary over the treatment group.



However, comparable improvement was not maintained for any of the comprehension skills. Although results consistently favoured the control group, the degree of difference decreased in the section on the use of creative and imaginative reasoning in reading. This test examined each child's ability to think about the material he had read, visualize the setting, respond to the characters, and sense implications. The score consisted of the summed scores on the sections on interpretation and appreciation, neither of which showed significant differences on the retention test, although both showed trends favouring the control group on the post-test. Improved achievement in the skills of interpretation and appreciation required increased ability to (a) infer, conclude, predict, and evaluate reading material; (b) become more able to think critically and attend to detail; and (c) make creative and imaginative responses to reading materials through the development of sensory impressions. These skills may well have been specifically taught. The teachers were given the pre-test results in March, and they indicated that they planned to use them for diagnosis and remediation of reading weakness. The treatment teachers may not have done so, since their pre-test results revealed no specific weaknesses in comparison with the control group. It is possible also that time of testing affected the results. During the study, pre-tests were administered at mid-term shortly before the parent-teacher conferences; post-tests were given in April just before the Easter vacation and the retention tests were completed in June just before the final reporting period; thus, the children's academic performance may have been adversely influenced by the disruptive effects of changing routines.

### *Conclusions*

If inquiry is a mode of behaviour which can be strengthened through the use of specific strategies, then it should be applicable to many areas. First, though, it would appear that inquiry needs to be studied and practised over a long period of time. Short-term training in different skills appears to limit rather than encourage skill development, especially in reading; this conclusion may explain the superior performance of the control group in some measures. Inquiry skills appears also to be directly related to a particular mode of communication: listening or reading. In this study the observed increase by the treatment group in listening achievement was possibly due to the oral nature of the learning activities. It would seem, therefore, that increased reading achievement might result from written inquiry activities. The real test of inquiry training, however, is not whether the child can inquire, but whether he does. Since he gains most of his knowledge of school subjects through language, it is possible that the questioning skill gained in listening and reading in one subject area would be used in another.

The act of inquiry itself appeared of value in motivation for learning. Teachers participating in this study reported that during the training period, the children demonstrated increased critical awareness, incidental skill learning, and an improved attitude towards language arts. These subjective observations tend to reinforce the assumption that inquiry is a highly motivating force for self-directed learning.

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## Authoritarian Personality and Control Ideologies of Teachers

*Hypotheses concerning the relationships among authoritarianism in personality, custodialism in pupil control ideology and autocracy in family ideology of elementary school educators were developed and tested. The F-Scale, the Pupil Control Ideology (PCI) Form, and the Traditional Family Ideology (TFI) Scale were personally administered by a trained researcher to virtually all the teachers and to a sample of principals in thirty-five elementary schools. For both principals and teachers, the hypotheses were confirmed. The evidence suggested that custodial pupil control ideology as well as autocratic family ideology are underlying facets of the authoritarian personality. It seems likely, however, that control ideologies of educators are a function of both personality and social system factors. (Dr. Hoy is a Professor of Education in the Department of Educational Administration and Supervision; Dr. Nachtsheim is a teacher in the South Brunswick Public Schools.)*

This inquiry concerns the ideologies of elementary school personnel regarding control of students as it relates to authoritarianism in personality. It builds upon an earlier series of investigations evolving from research on pupil control begun at the Pennsylvania State University (Willower, 1965; Willower & Jones, 1963; Willower, Eidell & Hoy, 1967). The initial theoretical framework postulated that both role and personality factors would influence the pupil control ideology of public school professional personnel. There is a large body of research which supports the impact of role factors on pupil control ideology (Hoy, 1967, 1968, 1969; Willower, Eidell & Hoy, 1967; Willower, Hoy & Eidell, 1967), but there has been much less systematic study of pupil control ideology as it relates to basic aspects of personality.

The pupil control ideology of educators has been conceptualized along a continuum ranging from "custodialism" at one extreme to "humanism" at



the other (Willower, Eidell & Hoy, 1967). A custodial pupil control ideology emphasizes maintenance of order. Students are perceived as irresponsible and undisciplined persons who must be closely controlled through punitive sanctions. Misbehavior is viewed in moralistic terms; pessimism and watchful mistrust characterize the custodial viewpoint. The contrasting humanistic pupil control ideology stresses an accepting, understanding, trustful view of students. Teachers are confident in the ability of students to learn to act upon their own volition and to accept responsibility for their actions.<sup>1</sup> The concepts of custodialism and humanism have provided a useful way to study these diverse modes of thought that guide individual adaptation as well as institutional policy in public schools.

The initial study on pupil control ideology (Willower, Eidell & Hoy, 1967) showed that closed-minded educators were significantly more custodial in pupil control ideology than open-minded educators. However, a subsequent study of a broad set of personality factors and pupil control ideology yielded negligible results; none of Stern's (1970, p.7) twelve personality factors of the Activity Index was strongly related to pupil control ideology. Leppert and Hoy (1972) suggest that, in spite of these findings, pupil control ideology is probably bound with deeper-lying personality characteristics, such as authoritarianism, which seem more relevant in ideology formulation than the broad measures of personality tapped by instruments such as Stern's Activities Index or Edwards' Personal Preference Schedule.

### *Rationale and Hypotheses*

Custodialism is strongly autocratic in its conception of the school and in its orientation that students are an inferior and threatening group entitled to few of the rights and privileges of adults. Humanism, on the other hand, seeks a more democratic school structure and regards students as persons to be understood and guided rather than as a group to be punished or condemned. In addition, there is substantial evidence that autocratic viewpoints tend to exist within authoritarian personality structures (Adorno et al., 1950; Dicks, 1950; Fromm, 1948; Gilbert & Levinson, 1956).

Gilbert and Levinson (1956) also point out that a custodial ideology has important psychic functions for authoritarian personality types. The idea that student misbehavior is simply irrational and not understandable has great value in reducing inner strain and maintaining self-esteem for educators who have difficulty in taking an intraceptive, psychological approach. Furthermore, for the person who has a great defensive need to displace and project aggressive desires from authority figures to those whose behavior can be regarded as immoral, custodial ideology has special equilibrium-maintaining value through its legitimation of punitive, suppressive measures.

These considerations led to the predictions that custodialism in pupil control ideology would be directly related to authoritarianism in personality and to autocratic beliefs concerning parent-child relations. More specifically, the following basic hypotheses were tested in this study:

- H.1 The greater the authoritarianism of elementary school professional staff, the more custodial the pupil control ideology.

H.2 The greater the authoritarianism of elementary school professional staff, the more autocratic the family ideology.

H.3 The more custodial the pupil control ideology of elementary school professional staff, the more autocratic the family ideology.

### *Procedures*

#### *Instruments*

The *Pupil Control Ideology Form*, a 20-item Likert-type scale, was used to measure the extent to which the pupil control ideology of educators was custodial or humanistic—the higher the score, the more custodial the ideology of the respondent. Examples of items include the following: “A few pupils are just young hoodlums and should be treated accordingly”; “It is often necessary to remind pupils that their status in schools differs from that of teachers”; “Pupils can be trusted to work together without supervision” (score reversed).

In earlier research (Willower, Eidell & Hoy, 1967) split-half reliability coefficients of the instrument in two samples were .95 and .91 with application of the Spearman-Brown formula. Validity of the measure was supported by principals’ judgments of the ideology of certain of their teachers. Teachers judged to be most custodial by their principals had significantly higher ( $p < .01$  using t-test procedures) PCI scores than a like number of teachers judged to be most humanistic.

The *F-Scale*, Form 30, was used to determine the extent of authoritarianism in personality. The underlying theory of this measure is based on *The Authoritarian Personality* (Adorno et al., 1950). The *F-Scale* is a thirty-item Likert-type measure, the higher the score, the more authoritarian the personality structure of the respondent.

Split-half reliability of the scale has been reported at .86 (McGee, 1955, p.123). Further, validity of the instrument has been supported by numerous studies using such varied subjects as camp counselors, teachers, and German prisoners of war (Dicks, 1950; Eager & Smith, 1952; Levinson & Huffman, 1955).

A twelve-item short form of the *Traditional Family Ideology Scale* (hereafter called the TFI-Scale) was used to assess family ideology of educators along an autocratic-democratic continuum (Levinson & Huffman, 1955). A high score represents strong adherence to autocratic family ideology. A few examples of items include the following: “A child should never be allowed to talk back to his parents or else he will lose respect for them”; “A woman whose children are at all messy or rowdy has failed in her duties as a mother”; “It is somehow unnatural to place women in positions of authority over men.”

Split-half reliability of the instrument has been reported at .90 (Levinson & Huffman, 1955). Further, construct validity of the scale has been reported in a number of studies (Gilbert & Levinson, 1956; Levinson & Huffman, 1955).

#### *Sample*

In order to test the hypotheses of the study, data were collected from the professional staffs of thirty-five elementary schools in New Jersey. The schools selected represented a diverse sample of elementary schools; they

included schools of different sizes from communities with different socioeconomic levels, and from rural, suburban and urban districts. Data were collected from virtually all teachers at regularly scheduled faculty meetings by a trained researcher. Principals also were asked to complete the research instruments at their convenience. All responses were completely anonymous.

Results

The hypotheses guiding this investigation were tested using correlational analysis. More than four hundred teachers in the thirty-five elementary schools returned usable instruments. Unfortunately, only fifteen principals out of thirty-five completed the instruments; hence, the results concerning the principals seem somewhat more tentative, although they are essentially the same for both teachers and principals.

As predicted, authoritarianism of elementary school personnel, as measured by the F-Scale, was significantly correlated with custodialism in pupil control ideology with an  $r=.52$  for teachers and  $r=.84$  for principals. Further, the more custodial the pupil control ideology, the more autocratic the family ideology of the respondents was found to be ( $r=.54$  and  $r=.77$ , respectively for teachers and principals). Finally, and as predicted, authoritarianism in personality was significantly related to autocratic family ideology ( $r=.76$  and  $r=.86$  respectively for teachers and principals). The results are summarized in Table 1.

TABLE 1  
SUMMARY OF CORRELATIONAL DATA USED TO TEST THE HYPOTHESES

Hypothesis		N	r	p
H.1	Teacher F-Scale with PCI	406	.52	<.01
	Principal F-Scale with PCI	15	.84	<.01
H.2	Teacher F-Scale with TFI-Scale	406	.76	<.01
	Principal F-Scale with TFI-Scale	15	.86	<.01
H.3	Teacher PCI with TFI-Scale	408	.54	<.01
	Principal PCI with TFI-Scale	15	.77	<.01

It is interesting to note that the degree of association between authoritarianism in personality and custodialism in pupil control ideology was significantly greater than for principals than for teachers ( $z=2.20, p<.05$ ); however, there were no significant differences between the correlations for principals and for teachers on the other two relationships.

Analysis of the data also indicated that male teachers were significantly more custodial in pupil control ideology than female teachers; however, the hypotheses held for both male and female teachers. The correlations were nearly the same irrespective of sex. Furthermore, the magnitude of the correlations among the variables remained essentially the same regardless of the extent to which the climate of the schools was open or closed. In other words, the organizational climate of schools as measured by Halpin's (1963) OCDQ was *not* a moderating variable for the hypotheses tested.



*Summary and Conclusions*

This inquiry has taken as its starting point the distinction between "custodialism" and "humanism" as contrasting ideological orientations of elementary school educators. The confirmation of the major hypotheses of the study lends support to the association between basic personality structure and ideology within individuals. The evidence suggests that custodial pupil control ideology as well as autocratic family ideology are underlying facets of the authoritarian personality. This conclusion is also supported in other studies where personality variables have been defined sharply and limited to authoritarian characteristics (Gilbert & Levinson, 1956; Helsel, 1971; Willower, Eidell & Hoy, 1967).

While both teacher and principal authoritarianism and custodialism in pupil control ideology were significantly correlated in the predicted direction, the relationship was significantly stronger for principals. Pupil control ideology consistently has been found to be related to professional role; that is, principals are more custodial than teachers; secondary teachers are more custodial than elementary teachers; and teachers are more custodial than guidance counselors (Willower, Eidell & Hoy, 1967). Although the association of personal authoritarianism and custodialism in pupil ideology may well be influenced by roles and positions within the school, the relationship between authoritarianism and autocratic family ideology did not significantly vary according to school roles. These results suggest the hypothesis that social system positions moderate such relationships only when the ideology concerned is functionally relevant to the role position and social context.

Pupil control has been found to be a salient aspect of life in schools (Willower, 1965; Willower & Jones, 1963; Willower, Eidell & Hoy, 1967). In fact, control of clients tends to be a pervasive theme in all service organizations where client participation is mandatory, on the one hand, and the organization has no choice in client selection, on the other. For example, organizations such as schools, prisons, and public mental hospitals are inevitably faced with clients who do not wish to take advantage of the services offered. One of the major forms of conflict in these service organizations is that between autocratic and democratic orientations. Increasingly, it appears that social ideologies have a psychological basis in the personalities of their adherents (Gilbert & Levinson, 1956; Helsel, 1971) as well as a basis in the role constraints of the particular social system. In brief, ideology in general and pupil control ideology in particular, seem to be a function of *both* personality and social system factors.

<sup>1</sup> For a complete description and analysis of the conceptualization of pupil control ideology as well as the development of the operational measure, see Willower, Eidell, and Hoy (1967).

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## Dogmatism and Deference: The Relationship Between Bureaucratic Orientation and Personality Type

*This study examined the relationship between dogmatism in beginning teachers and deference to bureaucratic norms of the school. Is there a difference in bureaucratic orientation of teachers between open and closed minded teachers? The results of this research suggest that closed minded teachers are significantly more bureaucratically-oriented than open-minded teachers. Moreover, the school seems to socialize both open and closed minded teachers towards the bureaucratic norms and beginning teachers, irrespective of level of dogmatism, tend to become more deferent to these norms. (Dr. Kuhlman is Associate Professor of Education at Messiah College, Grantham, Pennsylvania.)*

Attention has recently been focused upon the professional teacher operating within the school which is constantly and rapidly being transformed into a more highly bureaucratically-structured organization. Harper (1965) has applied the explicit criteria of Weber's "pure-type" bureaucracy (specialization, hierarchy of authority, impersonality and a system of rules and regulations) to the school and has concluded that the school organization does indeed manifest the essential characteristics of bureaucracy.

Lortie (1969) is satisfied that the authority structure of the public schools meets the minimal criteria of bureaucracy and Corwin (1965) as well as Anderson (1968) share the conviction that schools conform to the bureaucratic model.

Studies have tended to show that personality is an important variable in determining attitudes toward and adjustment to organizations (Presthus, 1962; Gordon, 1970; Kohn, 1971). Presthus (1962) contends that the bureaucratic situation tends to foster an adaptive personality type and this personality type tends to resemble Adorno's (1950) "authoritarian personality" and Rokeach's (1960) "dogmatic personality." Iannacone and



Button (1964) contend that an individual's response to the demands of a bureaucratically structured organization may be a function of personality.

Merton (1957) has suggested that the investigation of the relationship between personality and bureaucracy could produce worthwhile results. He further indicated in his classic analysis of the dysfunctions of bureaucracy that the organizational member undergoes a transformation as a result of his prolonged contact with the bureaucratic structure of the organization and this contact tends to produce undesirable consequences for behavior. Anderson (1967) concurs and states that bureaucracies "exercise a compelling but little . . . understood influence on the personality of the professional" (p. 135).

There tends to be general agreement concerning the nature of the impact of the organization on personality and from the analyses of studies related to this impact, there has emerged a prototypic "organization man" (Whyte, 1956). The characterization of the organizational man portrays a person who feels comfortable amid the bureaucratic structure and derives great satisfaction from his identification with the organization.

Definitions of personality are in abundant supply. Allport (1937), in an exhaustive survey of the literature, identified almost fifty such definitions. It seemed appropriate to identify a frame of reference for this study in which personality could be viewed and especially as it had reference to the individual's participation in bureaucratically structured organizations. As Hall and Lindzey (1957) have indicated, "It is impossible to define personality without coming to agreement concerning the theoretical frame of reference within which personality will be viewed" (p. 10). In this study, the concept of *Dogmatism* (Rokeach, 1960) was employed to determine the relationship between personality and bureaucracy.

Presthus (1962) who has undertaken an extensive theoretical treatment of the interaction between personality and organizational involvement adopted Sullivan's (1953) frame of reference which conceives of personality as the product of social interaction and that which emerges as distinct personality has resulted from the socialization process. Presthus contends that the "upward mobile" is uniquely suited to function within the organization because his personality is compatible with the demands the organization makes and the rewards it offers. Different patterns of learning result in different modes of perception and modes of perception are determined by the value system or needs disposition which have resulted from the socialization process. Accordingly, the perceptions an individual has of the organization and his responses to its demands (i.e., his orientations) will be conditioned by his needs disposition. Therefore, organizational accommodation and particularly positive commitment to the organization may be viewed as a function of personality.

The characteristic personality pattern of the upward mobile and his "process of organizing reality" reveals great similarities to the "authoritarian personality" as defined by Adorno (1950) and measured by his F-Scale.

Rokeach (1960) formulated a conceptual framework which examined the structure of belief systems rather than content of belief systems. Correspondingly, Rokeach developed his measure of *Dogmatism*. It consists of

“openness” or “closedness” of the structure of belief systems. Closed-mindedness would be synonymous with dogmatism.

### *Rationale and Hypotheses*

The basic characteristic which differentiates between open and closed minded individuals, Rokeach (1960) maintains, is the extent to which reaction to decisions is based upon relevant, intelligent and appropriate factors independent of the predilections of the individual. Open minded individuals will “receive, evaluate and act upon relevant information received from the outside on its intrinsic merits unencumbered by irrelevant factors in the situation arising from within the person or from the outside” (Rokeach, 1960, p. 57). Deference to hierarchical authority within an organization, irrespective of the relevancy of the information or its intrinsic merits is a conspicuous display of closed mindedness. The bureaucratic man might manifest behavior which would be consistent with the closed minded system.

Teachers can be classified as open or closed minded using Rokeach’s conceptual framework. Closed minded teachers would tend to hold to a belief system of authority where authority is absolute and consequently would more readily identify with hierarchical authority and bureaucratic norms than would open minded teachers who would evaluate people and situations using a more relativistic criterion for assessment.

Beginning teachers who have had limited contact with the socializing forces within the schools provide a good sample of the teacher population with which to test this assumption. Therefore the following hypothesis was formulated:

H<sub>1</sub> Closed minded beginning teachers will have a significantly greater bureaucratic orientation than will open minded teachers.

Bureaucratic orientation is dependent upon contact with the organization; that is, the degree to which an individual manifests a bureaucratic orientation will be determined to a great extent by his contact and interaction with the organization. Personality types with a predisposition toward the bureaucratic norms of the organization who do not encounter organizations directly will tend not to manifest that orientation to the same extent as individuals who have had direct contact with the organization. Examination of the effects of socialization of beginning teachers classified as open and closed minded to the bureaucratic norms of the school was guided by the following hypotheses:

H<sub>2</sub> Closed minded beginning teachers will have a significantly greater bureaucratic orientation after the first year of teaching.

H<sub>3</sub> Closed minded prospective teachers who do not teach after graduation will not have a significantly greater bureaucratic orientation.

### *Procedures*

#### *Instruments*

*The Bureaucratic Orientation Scale* (BOS) and the *Dogmatism Scale* were the operational measures used to test the hypotheses.

The *Bureaucratic Orientation Scale* was refined from a factor analysis



of the forty-five Likert items which comprised Corwin's (1966) Professional and Employee Orientation Scales. The BOS consists of fifteen Likert items which measure five factors or aspects of bureaucratic orientation—Organizational control, Subordination-standardization, Rule orientation, Community orientation and Organizational loyalty. Examples of BOS items include: "Personnel who openly criticize the administration should be encouraged to go elsewhere (Organizational control); "Teachers of the same subject throughout the system should follow the same kind of lesson plans" (Subordination-standardization); "The school should have a manual of rules and regulations which are actually followed" (Rule orientation); "Teachers should take into account the opinion of their community in guiding what they say in class and in their choice of teaching materials" (Community orientation); "A good teacher should put the interests of his school above everything else" (Organization loyalty). The total BOS score provided an overall index of bureaucratic orientation. Split-half reliability for the entire scale was 0.83.

The *Dogmatism Scale* was constructed to assess an aspect of personality. It is a 40-item measure of open and closed mindedness. The scale which purports to measure the structure of belief systems rather than the content of belief systems is a further development of the conceptual base underlying the *California F-Scale* development by Adorno, Frenkl-Brunswick, Levinson and Sanford (1950). Respondents indicate their agreement or disagreement with forty statements by using numerical designation which range from "I agree very much = +3" to "I disagree very much = -3."

A short form of the *Dogmatism Scale* was utilized for this study. Troidahl and Powell (1965) have reduced the original 40-item Form E to twenty items to facilitate data gathering in field studies. They performed predictability studies to determine the results which would have been obtained by using the 40-item instrument. A cross-validation study of the 20-item measure and the original 40-item measure produced a correlation of 0.94 between the two. The split-half reliability for the short form is 0.79. Troidahl and Powell (1965) concluded on the basis of additional studies and cross-validation that the 20-item scale "could be used without reluctance" (p. 214).

### *Subjects*

The Scales were administered to a sample of prospective elementary and secondary school teachers from four New Jersey colleges in the spring of the year at the completion of their undergraduate teacher-preparation programs (N=322). The scales were also mailed to the home addresses of these graduates approximately one year later near the completion of the first year of teaching experience. Obviously, not all respondents had been involved in teaching during the year. Two hundred fifty-four usable responses were returned (78%) and of these, 165 had been involved in teaching and 89 had been involved in non-teaching activities during the year.

### *Results*

Dogmatism scores were divided at the median and the upper half scores were subsumed under closed mindedness and the lower half scores were



subsumed under open mindedness. First, analysis of variance was computed for the open and closed minded groups of the total sample of prospective teachers since these data were available. The analysis yielded an *F* ratio of 25.42 which is significant beyond the .001 level. The means (46.65 for the closed minded group and 51.20 for the open minded group) were in the predicted direction. Secondly, analysis of variance was computed for closed minded beginning teachers (N=85) and open minded beginning teachers (N=80) and the obtained *F* ratio was 4.61 which is significant at the .05 level. The means (47.98 for closed minded teachers and 50.55 for open minded beginning teachers) were in the predicted direction and the hypothesis was affirmed.

In order to test the additional hypotheses, differences between before and after scores on the bureaucratic orientations scale were analyzed by use of a paired t-test for the differences of means for correlated samples.

The mean scores for closed minded beginning teachers before and after the first year of teaching were 50.88 and 47.98 respectively and the obtained t-value was 4.141 which is significant at the .001 level. Hypothesis 2 was therefore supported. Closed minded beginning teachers did become significantly more bureaucratically-oriented during their first year of teaching.

TABLE 1  
CLOSED MINDED BEGINNING TEACHERS AND CHANGE IN  
BUREAUCRATIC ORIENTATION

Number	Pre Mean	Post Mean	Mean Difference	Standard Deviation of Mean Difference	Standard Error of Mean Difference
85	50.88	47.98	2.90	6.46	0.70

$t = 4.14, df = 84, p < .001$

Prospective closed minded teachers who did not teach experienced no significant change in their bureaucratic orientation one year after graduation from college. The t-value of 0.75 was not significant, however, the direction of the mean difference change was toward greater bureaucratic orientation (47.31 pre-mean and 46.52 post mean).

TABLE 2  
CLOSED MINDED PROSPECTIVE TEACHERS AND CHANGE IN  
BUREAUCRATIC ORIENTATION

Number	Pre Mean	Post Mean	Mean Difference	Standard Deviation of Mean Difference	Standard Error of Mean Difference
34	47.31	46.52	0.79	6.18	1.06

$t = 0.75, df = 33, N.S.$

Although not included specifically in the hypotheses of this study, an analysis of the changes in bureaucratic orientation for open minded beginning teachers was performed in an attempt to determine if the socializing influences of the school's bureaucracy extended to teachers who were classified as less dogmatic. The analysis yielded a t-value of 2.25 (pre-mean = 52.19 and post mean = 50.55) which was significant,  $p < .05$ . Apparently, open minded teachers experienced an increased bureaucratic orientation similar to that experienced by closed minded teachers.

TABLE 3  
OPEN MINDED BEGINNING TEACHERS AND CHANGE IN  
BUREAUCRATIC ORIENTATION

Number	Pre Mean	Post Mean	Mean Difference	Standard Deviation of Mean Difference	Standard Error Of Mean Difference
80	52.19	50.55	1.64	6.15	0.73

$t = 2.25, df = 79, p < .05$

*Discussion*

The present research focused upon the relationship between personality types and deference to bureaucratic norms. Specifically, the research design involved the changes in bureaucratic orientations of beginning closed and open minded teachers during their initial encounter with the school in a professional role as well as the differences between their orientations to the school's bureaucracy. Does the school exercise an influence similar to other bureaucratically-structured organizations upon its participants as Presthus (1962) suggest it may? With reference to personality types as defined by Rokeach (1960), and the impact of the organization upon them, both closed and open minded teachers seem to be sensitive to the bureaucratic pressures. Regardless of personality type, both open and closed minded teachers became significantly more bureaucratically-oriented. Bridges' (1965) study of open and closed minded school principals and conformity to role prescriptions suggest a similar occurrence.

Interestingly, closed minded prospective teachers who did not teach did not experience a significant change in bureaucratic orientation which would tend to support the finding that the school does indeed "exercise a compelling . . . influence on the personality of the professional . . ." (Anderson, 1967, p. 135). Contact with the school organization tends to enhance bureaucratic orientation for both open and closed minded teachers whereas lack of involvement in the school resulted in no significant change in orientation.

Closed minded teachers, as hypothesized, were more bureaucratically-oriented than open minded teachers. The orientations of open and closed minded prospective teachers prior to the encounter with school were more disparate and the mean scores (51.20 and 46.65 respectively) reflect this. The difference in bureaucratic orientation for the two groups after the year

of teaching, although significant, was not as great as that which is reflected in the respective mean scores (50.55 and 47.98). Such findings tend to support the contention that the more dogmatic teachers are more amenable to the socializing bureaucratic norms of the school organization and that their value systems and need dispositions are commensurate with the bureaucratic demands of the school. However, irrespective of personality type, the bureaucracy seems to exercise a strong influence on orientation as Presthus (1962) and Denhardt (1968) have suggested.

### *Summary*

Generally, it may be concluded that closed minded teachers have organizational orientations reasonably consistent with bureaucratically-structured schools. The investigation of personality types utilizing the Dogmatism construct gave partial support to Presthus' contention that there is a discernible personality type which is compatible with the norms of bureaucracy.

The influence of the school in producing this increased deference to bureaucratic norms must be considered in making judgments about orientations to organizations by personality types. Contact with the organization tends to reduce the importance of personality in bringing about deference to its norms. Role socialization tends to reduce attitudinal differences among role incumbents (teachers) and personality may become less important in responses to the school's bureaucratic norms.

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## THE ALBERTA JOURNAL OF EDUCATIONAL RESEARCH

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FACULTY OF EDUCATION  
*The University of Alberta*

## ERRATUM

Janzen, H. L. and Boersma, F. J. Locus of Control and Its Relationship to Moral Development, Vol. XXII, No. 3, 1976, should read: Eby, J., Janzen, H. L. and Boersma, F. J. Drs. Janzen and Boersma sincerely regret and take responsibility for the oversight; they wish to apologize to Mr. Eby and the readership of the Journal for the false impression that the omission created. (Mr. Eby is a school teacher in Hamilton, Ontario.)

## Editorship of AJER

The Publications Committee wishes to thank Dr. Thomas E. Kieren for his services as Editor of **AJER** over the past two years. Under his capable guidance, this journal continued to develop as an important publication in the field of education; Dr. Kieren will be away during the next year on a well-earned study leave.

We are pleased to welcome as the new editor Dr. Andrew K. Clark who is an Associate Professor in the Department of Industrial and Vocational Education. Dr. Clark holds the B.A. and B.Ed. degrees from the University of Alberta, the M.Ed. degree from the University of Manitoba, and the Ph.D. degree also from Alberta. In his doctoral studies, he specialized in educational research and measurement with additional work in computer programming, theory of data analysis, and philosophy of science.

Before coming to the University of Alberta in 1967, Dr. Clark served as a training officer in the Education Branch of the Royal Canadian Air Force. Since his appointment, he has been involved in teaching undergraduate and graduate courses, supervising field experiences and directing graduate research. His recent research has included studies of metric conversion costs in industrial education career fields and the readability of industrial education textbooks.

We look forward to Dr. Clark's term of office as editor and wish him well in his new responsibilities.

E. Miklos, Chairman  
Faculty Publications Committee

A. MacKAY

*The University of Alberta*

## The E.O.F. Evaluation Study: Some Tentative Generalizations

*During 1975 an evaluation of the Alberta Educational Opportunities Fund was conducted. The EOF program had a number of characteristics which had implications for the evaluation design. These included: broadly stated goals, special "earmarked" funding, a requirement for written proposals, a requirement for an internal evaluation of each project, and considerable variation in school subject areas dealt with by the projects.*

*Several tentative generalizations emerged from the reactions to these characteristics. The generalizations were: (1) Principles of research design must be adapted to the exigencies of the situation. (2) Attempts should be made to obtain data which permit cross-checking so as to compensate for deficiencies in any single data source. (3) Questions about side-effects should be part of most evaluation designs. (4) A variety of research paradigms should be known by and used by evaluators. (Dr. MacKay is Chairman of the Department of Elementary Education, The University of Alberta.)*

This paper is intended to do three things: (1) to identify some of the problems associated with evaluation of a province-wide program, (2) to describe how these problems were dealt with in the particular case under review, and (3) to suggest how evaluators and their clients might approach problems of a similar nature. The case in point was the evaluation of the *Alberta Educational Opportunities Fund* program. The program (hereafter referred to as E.O.F.) was introduced in 1973 and provided twenty dollars per pupil per year for approved projects aimed at pupils in Grades 1-6. Beside the elementary school component there was an E.O.F. (Compensatory) component which provided funds, on a project approval basis, for programs aimed at disadvantaged pupils at any grade level. The E.O.F. program was originally planned for the three-year period 1973-76 and the evaluation under discussion here was conducted towards the end of the second year of operation.



The terms of reference for the evaluation were embodied in eight general questions:

- (1) To what extent has the E.O.F. program achieved its intended objectives?
- (2) What by-products in terms of educational programs, innovations, etc., has the program produced?
- (3) How well have the individual E.O.F. projects in school districts realized their stated objectives?
- (4) What administrative, fiscal, or other effects have been produced at the school district level, by the introduction of the E.O.F. program?
- (5) How valuable is the funding of projects on the basis of proposals as compared with formula financing?
- (6) What are the specific changes in E.O.F. program policies and procedures which would improve the quality and long-term productivity of the project?
- (7) How well has E.O.F. (Compensatory) realized its stated objectives?
- (8) Needs assessment re secondary component of E.O.F. What are the perceived needs, if any, of clients relative to a secondary component? If positive, what should be the nature, scope and modality?

#### *Problems in a Province-Wide Evaluation*

As development of an evaluation design unfolded during the period September, 1974 to March, 1975, a number of problems and questions emerged; before listing and elaborating upon those problems and questions, however, more should be said about some of the characteristics of the particular program under review.

#### *Characteristics of E.O.F.*

The program can be described in terms of its general goals, method of funding, procedures for project approval, requirements for evaluation, scope, and its relationship to other components of the total school program in Alberta.

1. *General Goals.* According to the E.O.F. Policy Manual (1974), the objectives of the two components of the fund were:

*Elementary* — to upgrade the quality of human educational services at the classroom level by provision of funds additional to the regular foundation program grants.

*Compensatory* — to provide the extra assistance at the classroom level that culturally, socially, or environmentally disadvantaged students may need in order to be on an equal footing with other students.

As guiding principles for both components, the following four points were also noted in the Policy Manual. (1) *Integrated projects*, encompassing both Elementary Education and Compensatory Education (as well as other areas such as Early Childhood Services) are seen as operationally sound locally, even though funding is separated for administrative purposes at the provincial level. (2) *Local support*, from both parents and school staff, is essential. (3) *Local financial and services support* from other community organizations and individuals is seen as evidence of local commitment to the proposed projects. (4) *Emphasis of funding* will be on delivery of human services at the classroom level, services which are of direct assistance to teachers and learners.

These goals and the guiding principles which, in some sense, provided a description of the processes to be used, were stated at an extremely general level. As beginning points for an evaluation design, they were of only limited utility. The main inference to be drawn from this fact is that a great many evaluation studies are focussed on programs for which the degree of goal specification is of the type represented in this particular case. Broad general statements which seemed appropriate as statements of government policy are, in cases such as this one, almost useless for an evaluator who would prefer to begin with a well developed set of operational goals. In the E.O.F. case, the goals and guidelines helped in establishing the general direction of the study, but, in effect, it enabled (or forced) the evaluator to plan a somewhat goal-free evaluation.

2. *Method of Funding.* In Alberta, the school foundation plan provides operating grants on a per pupil basis for programs in grades 1-12. Beside the operating grants which provide instructional and support services, there are capital grants and transportation grants. As is the case in many other North American jurisdictions, the per pupil grants are weighted so that a higher grant is paid for secondary school pupils than for elementary pupils. However, decisions about expenditures are made by the local school boards within the various constraints imposed on them by negotiated agreements, overhead costs, and so on.

The E.O.F. program, as mentioned above, provided per pupil grants which were earmarked for either the Elementary or Compensatory programs. In their audited financial statements, school boards were required to report aggregate E.O.F. expenditures including a prorated cost figure for transportation costs associated with E.O.F. Therefore, local discretion, once a project had been approved, was limited to the terms set out in the proposal for funding. Such a funding mechanism clearly could have had important effects on the balance between local and provincial level decision-making about school-based programs. For the evaluation project, it meant that one had to be conscious of the interplay between centralist and decentralist forces which might have been operating in the political field.

3. *Procedures for Project Approval.* A central E.O.F. office was established in the Department of Education. One of its main functions was to review and assess each proposal and to make recommendations for approval or rejection. An E.O.F. Policy Group was set up to act as a referral body for proposals which the E.O.F. Office decided were "difficult to assess." School systems whose proposals were rejected by the E.O.F. office were given the right to appeal to the E.O.F. Policy Group.

Availability of the project proposals in the E.O.F. Office files meant that the evaluator was able to examine these and related documents in order to obtain a fairly detailed description of the projects and to be able to make judgments about the extent to which the guidelines had been adhered to by both proposal writers and the E.O.F. administration. As a source of important data, the proposals were extremely valuable. On the other hand, the existence of a mechanism for approval suggested that the evaluation should attempt to take account of local administrative "costs" associated with the project development procedures.

4. *Requirements for Evaluation.* In the E.O.F. Policy Manual and other documents, a need for evaluation of projects was set forth. It was suggested



that the evaluation design for each proposed project should have three main capabilities: (1) It should offer a broad conceptual scheme that will facilitate the evaluation of projects. (2) It should provide for definition of evaluation strategies such as source of data, kinds and types of data to be collected, and selection of analysis and reporting techniques appropriate to the conceptual scheme. (3) It should provide a system of generalization about the use and appropriateness of different evaluation procedures to various project components.

Provision was made for Monitoring Reports which were to be prepared by personnel from the Regional Offices of the Department of Education. A formal, internal evaluation was to be provided at the end of the final year of each approved project.

For the province-wide evaluation, the requirements described above had some important implications. It meant that the province-wide study and recommendations would be completed *before* the internal evaluations of the three-year projects (finishing in June of 1976) became available. There were *some* internal evaluation reports available during the spring and early summer of 1975, but most of the evaluation reports from school districts were received by the E.O.F. office after the data collection for the province-wide study had been completed. On a positive note, the requirement for evaluation might have created a readiness for evaluation which would facilitate the work of the province-wide evaluation team.

However, given the inability of some school districts to carry out the internal evaluation, there was the danger that some jurisdictions would expect the province-wide study to meet some of their local needs. In fact, during preliminary discussions with school district officials in the fall of 1974, it became quite clear that the evaluation design could not adequately satisfy the needs of local districts to have help in the design and implementation of project evaluation. Throughout the design phase, the question of how to deal with the requirement for internal evaluation came up many times; the approach taken to the question will be described later in this paper.

5. *Scope of E.O.F.* The E.O.F. program, during the 1974-1975 school year, was comprised of some 500 projects covering a wide range of subject areas in the elementary school. Every school jurisdiction in the province had participated in the program and, in most cases, had participated up to the maximum level of available funding. Given the large number of projects, the matter of selecting a sample of projects for somewhat detailed analysis was another problem. Some of the subsidiary questions on this matter were: (1) How large should the sample be? (2) Does randomization matter? (3) How does one achieve representativeness?

However, the main question seemed to be: Is there any such thing as a sample of projects which would enable one to make estimates about the nature of the population of projects? Given the variation in subject areas, goals, types of programs, etc., this main question loomed large during the design and implementation of the study.

6. *Relation to Other Components of School Programs.* One of the guidelines for E.O.F. suggested that the projects should be planned so as to contribute directly to the effectiveness of non-project classrooms and



teachers. In other words, they were not to be so different from regular school operations as to be isolated from them in any important sense.

Moreover, it was clear that part of the underlying philosophy of the special thrust in elementary schooling was a belief by policy-makers that the E.O.F. program should make a difference in the quality of schooling for all elementary pupils, not just those pupils involved directly in projects.

This meant, for the evaluation, that one always had to be conscious of the need to ask qualitative questions that went beyond questions about the performance of the projects per se. The spinoff or side effects questions, therefore, became very important and, in the end, possibly constituted the most significant part of the study.

One should also note that E.O.F. was not the only special funding mechanism in use in the province during the time period referred to above. There was, for example, an Early Childhood Services funding program, and a Learning Disabilities Fund. Each of these programs involved school district personnel in the development of proposals and gave one or another branch of the provincial Department of Education the authority to approve and, in some cases, monitor the programs. Hence, from the point of view of school district personnel, E.O.F. and the other specially funded programs may have been seen as a course of increased administrative workload and a drain on some local resources. In designing the evaluation, one became aware of the difficulty of separating E.O.F. completely from the other school programs identified in this section of the paper.

### *Problems and Questions*

Some of the problems associated with this province-wide evaluation have been made more or less explicit in the previous section of this paper. However, it would seem to be useful to list the problems and questions and to try to focus more specifically on them as methodological problems in evaluative research.

In Table 1, a skeletal list of program characteristics and the implications each of these had for the evaluation study is provided. In the following sections of this paper, the information contained in this table will be used as a basis for discussion of: (1) how the problems were coped with, and (2) some tentative generalizations for evaluators who are faced with similar problems. For ease of identification, the implications listed in Table 1 have been numbered from 1 to 9.

### *The E.O.F. Evaluation*

This section will not attempt to provide a complete description of the E.O.F. Evaluation Study<sup>1</sup>. It will simply attend to some areas in which implications were identified in the preceding section. In no way is it suggested that the approaches taken in the E.O.F. study comprise an ideal way of coping with the problems. There were, in each instance, several possible ways of handling the problems. The ways used in this particular evaluation were very much the result of such non-scientific bases as limits on the availability of human and other resources for the evaluation project, the evaluator's idiosyncratic view of evaluation design, the time line for the evaluation (completion of the report was originally required for November

TABLE 1  
PROGRAM CHARACTERISTICS AND IMPLICATIONS FOR EVALUATION

Program Characteristics	Implications for Evaluation
Broad General Goals	(1) Goal-Based Evaluation was Difficult
Special Funding	(2) Intensified Influence of Political Environment
Written Proposals	(3) Documentary Source of Data (4) Possible Side-Effects on Administrative Workload
Internal Evaluation Requirement	(5) Possible Readiness for Evaluation
Large Number and Variety of Projects	(6) Sampling Problem (7) Difficult to Generalize
One Component of Total School Program	(8) Difficult to Determine Long and/or Short Term Effect on Quality (9) Difficult to Separate Effects of E.O.F. from Effects of of Other Program Components

30, 1975 and was advanced to November 1, 1975), etc. They do represent a somewhat pragmatic and expedient solution to some of the problems and, as such, may be of use to others who become involved in the design and execution of large-scale evaluation projects.

*Goal-based Evaluation was Difficult*

Given the evaluator's favorable bias towards goal-free evaluation, the lack of specification of goals was an advantage. It was possible, of course, to ask some questions about attainment of the general goals of E.O.F., but the goal statements in no way prevented the evaluator from moving into other areas of concern. Of the eight general questions with which the evaluation study dealt, only two referred to achievement of intended objectives. The other six questions referred to side-effects and various contextual or administrative issues. When the study was completed, it became apparent that perhaps the most fruitful questions were those which had focussed on matters other than achievement of the intended objectives of the province-wide program.

*Intensified Influence of Political Environment*

Any evaluation study will be affected somewhat by the context of political decision-making in which it is embedded. In this case, the special funding mechanism had some implications with respect to local control over education. The whole notion of incentive funding has attached to it some

elements of centralization of control. As a matter of fact, one of the eight general questions mentioned earlier in the paper was designed to elicit responses about the special funding mechanism. Although some school trustee association officials at the provincial level stated a position against earmarked funding, a majority of the people interviewed at the school district level favored the earmarking of grants for elementary school and compensatory projects. Throughout the period of data collection and analysis, members of the evaluation team, particularly those who made site visits and conducted the 337 interviews, had to be conscious of the delicate balance between central (i.e., provincial) and local control over education. The external evaluator concluded that special funding of the E.O.F. type should be continued and even extended to secondary schools thus placing a highly positive value on the slightly centralist bias inherent in project or incentive funding. Thus, the approach taken during the evaluation was simply to focus on the funding mechanism as a legitimate evaluative question rather than merely treating it as a constraint of some kind.

### *Documentary Source of Data*

The requirement for written proposals, which was an important part of the operating procedures for E.O.F. was of great advantage to the evaluator. A rather extensive analysis of the materials in E.O.F. central office files uncovered information which both confirmed and elaborated upon information that had been obtained from the interviews and site visits. A schema for analyzing the documents was developed especially for the study and, with minor modifications, it could serve a similar purpose for virtually any project proposal in the public schools sector of education.

The complete files housed in the central E.O.F. office were available to the evaluation team. A sample of 78 project files was selected so as to include all projects (47) which had been selected for the interviews and site visits as well as an additional 31 projects. The format for document analysis dealt with the following topics: funding emphasis, rationale, objectives, description of programs, evidence of support, evaluation components, quality of evaluation design, etc. As a way of cross-checking the data obtained from the site visits, the document analysis had good methodological strengths.

### *Sampling*

A stratified random sample of 47 projects was drawn from the population of projects listed in E.O.F. central files. Stratification was made on the basis of size and cost of project, rural versus urban location, geographical location in the province, and subject area focus. It should be stressed that this seemed to be the best available solution rather than an absolutely flawless solution.

Given the fact that the projects were initiated by local people, they were fairly idiosyncratic in some important respects. However, examination of the total population provided some clues about types of programs and it was possible to do a certain amount of stratification before drawing the random sample. The sample of three-year projects represented 12.3% of the population.



### *Effects on General Quality of Education*

Because E.O.F. was only one component of the total set of elementary school programs, it was never clear to the evaluation designer how its impact on quality should be assessed. Since an overall objective of the policy was to improve elementary education, an attempt had to be made to go beyond the individual projects into the realm of general qualitative assessment. In this case, the evaluator operated with the following set of implicit criteria for overall, long-term, qualitative impact:

- (1) A firm basis in educational research.
- (2) A reasonably high degree of evaluative information.
- (3) A plan for disseminating information from projects so as to have an impact on regular elementary school programs.
- (4) Development of important general skills in teachers and administrators (e.g., proposal writing, evaluation, local curriculum development, etc.).

Application of these criteria to the province-wide program had to be a highly subjective judgment in some respects. However, the availability of documents and the information gained from the site visits provided the evaluator with enough concrete information to enable him to make such a judgment. As a matter of fact, the judgment was that the above criteria had not generally been met even though E.O.F. was very favourably viewed by participants and even though there was no strong evidence to suggest that individual projects had not achieved their own objectives.

It turned out, in other words, that answering the question, "What difference did it make?", in terms of provincial-level or policy-level concerns is a rather tricky job. Our solution is legitimate only insofar as it was based on a system of criteria that seemed to be defensible on logical grounds coupled with some objective evidence.

### *Generalizations for Evaluation*

The link between the approaches taken in these cases and the generalizations which will be presented in this section is mainly in terms of the apparent acceptability of the evaluation report to the clients for whom it was prepared. In spite of the numerous deviations from classic research design principles, the study enabled the evaluator to draw a number of conclusions and made him confident enough in the findings to make several policy recommendations to the government.

The link between the findings and the recommendations was not questioned, in any fundamental sense, by the officials in the government with whom the evaluator had first-hand contact. How the government will handle the recommendations is, of course, another matter. The main point being argued here is that a somewhat idiosyncratic and jerry-built evaluation design seemed to "work." Therefore, the generalizations which will be briefly discussed in this last section are of some practical, if not scientific, utility.

- (1) Knowledge of research design is necessary; but principles of design must be adapted to the exigencies of each situation. Rigour may have to be sacrificed in order to answer questions which are not susceptible to classic research design approaches.
- (2) Some attempt should be made to obtain cross-checking data so as to

compensate for the deficiencies usually inherent in any single data source. (For a discussion of this point, see Webb et al, 1966).

- (3) Documents, such as project proposals, are an important source of data.
- (4) Questions about side-effects should be part of virtually every evaluation design.
- (5) A variety of research paradigms should be used by evaluation designers, including such techniques as public opinion sampling, content analyses of documents, etc., as well as the more widely used techniques of the educational researcher.

### *Concluding Statement*

A single case study, but one which dealt with questions that were large in scope, illustrated some of the ways in which practical design problems can be dealt with. The approaches described here were somewhat idiosyncratic to the situation and to the preferences of the evaluator. However, they did lead to some tentative generalizations which may help the educational evaluator and his clients—educational policy makers.

### *Epilogue*

In February of 1976, the Government of Alberta announced that the E.O.F. (Elementary) program would continue for a further three-year period.

---

<sup>1</sup>MacKay, D.A. "An Evaluation of the Educational Opportunities Fund Program" (Report to the Minister of Education, Province of Alberta). N.B. Copies of the report may be requested from the Department of Education, Province of Alberta, Edmonton, Alberta. The author of this paper is, unfortunately, unable to provide copies.

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- Webb, E. J., Campbell, D. T., Schwartz, R. D., Sechrest, L. *Unobtrusive measures: Nonreactive research in the social sciences*. Chicago: Rand McNally & Co., 1966.
- Mackay, A. An evaluation of the Educational Opportunities Fund. A Report to the Alberta Department of Education, Edmonton, 1975.

R. D. HOGE

and

SALLY LUCE

*Carleton University*

## Behavioural and Performance Correlates of Test Anxiety in Children

*Relations among test anxiety, performance on a complex task, and task behaviour were investigated within a simulated teaching situation. It was predicted that test anxiety would relate negatively to performance accuracy and level of active task involvement. The latter prediction was based on some recent suggestions of a relation between test anxiety and attentiveness. Adult supportiveness was also represented as a variable in the study. Thirty-six male and thirty-six female grade 3 and 4 pupils were included in the sample. The data confirmed predictions with respect to the test anxiety-performance accuracy relation and the test anxiety-active task involvement relation. The effects of sex and the supportiveness variable are also discussed. (Dr. Hoge is Associate Professor in the Department of Psychology, Carlton University and Ms. Luce is at the same University.)*

Test anxiety is generally considered to represent a disposition toward anxiety in evaluative situations. Children's test anxiety scores have been shown to relate negatively to performance on a variety of experimental tasks (e.g., Doyal & Forsyth, 1972; Lekarczyk & Hill, 1969) and, more important from a practical point of view, the scores have been shown to relate negatively to academic achievement (Hill & Sarason, 1966; Sarason, Davidson, Lighthall, Waite & Ruebush, 1960; Sarason, Hill & Zimbardo, 1964). Both scores on standardized achievement tests and teacher assigned grades have been used as indices of achievement in those studies.

An interesting hypothesis regarding the mechanisms underlying the test anxiety-performance relation has been suggested by Wine (1971) who hypothesized that the poor performance of the high anxious child is a result of an inability to attend to task demands. This hypothesis is consistent with other theoretical developments regarding test anxiety (e.g., Liebert & Morris, 1967; I. Sarason, 1972) and it is a hypothesis of some practical significance. If inattentiveness is a key factor in the poor performance of test anxious



children, then intervention efforts can be directed toward this specific area of disability. While there is some indirect support for the attention hypothesis (Sieber, 1969; West, Lee & Anderson, 1969), direct empirical support is lacking. In the present study, behavioural data reflecting level of attentiveness were collected on high and low anxious subjects. It was hypothesized, consistent with Wine's formulation, that test anxiety scores would relate negatively to a measure of active task involvement and positively to a measure of distracted behaviour.

A second objective of the study involved an attempt to assess the effects of varying levels of adult emotional support on the test anxiety-performance relation. It was hypothesized that the provision of emotional support would moderate the effects of test anxiety on performance. Kozma's (1969) finding that high test anxious children are more responsive to social approval than low test anxious children and I. Sarason's (1958) finding that, with university students, test anxious subjects perform better when provided with reassurance appeared consistent with the hypothesis advanced.

The present experiment involved presenting subjects with a complex learning task within a simulated teaching situation. The "teacher" in that situation either provided a supportive environment (reassuring comments, social reinforcement, etc.) or a neutral environment (no reassuring comments, no social reinforcement). Stronger relations between test anxiety scores and performance were predicted in the nonsupportive than in the supportive condition. Further, stronger relations between test anxiety scores and the behavioural measures of attention were predicted in the nonsupportive than the supportive condition.

### *Method*

#### *Subjects*

Subjects were drawn from six grade 3 and grade 4 classrooms of two schools within the Ottawa Board of Education. The experimental group, composed of 36 males and 36 females, was randomly selected from the larger group. The median age of the 72 experimental subjects was eight years, ten months, and the ages ranged from seven years, nine months to nine years, nine months.

#### *Variables and design*

The principal concern of the study was with relations between test anxiety scores and the performance and behaviour measures. These relations were explored by calculating correlation coefficients for (a) the total sample of subjects, (b) for each of the two sexes, and (c) for each of the two teacher supportiveness conditions.

Test anxiety was measured by the Test Anxiety Scale for Children (TASC) which is a 30-item paper and pencil test developed by Sarason et al. (1960). One other scale, the 27-item Defensiveness Scale for Children (DSC) was also administered. This scale provided a check on response distortions within the TASC (Sarason et al., 1964).

The two levels of the teacher supportiveness variable, supportive-nonsupportive, were defined in terms of two roles assigned the "teacher," a female confederate of the experimenters. Three aspects of the role were

critical to the manipulation: the general attitude assumed by the “teacher” toward the child (either warm or neutral), the provision (or withholding) of social reinforcement and the provision (or withholding) of supportive comments. The “teacher” was given considerable training in playing the two roles. Validity data regarding the manipulation are presented in the results of the study.

### *Experimental task*

The tasks used in the study were basically concept formation problems which had been adapted from the Attribute Games and Problems kit prepared by McGraw-Hill. A set of 10 problems was developed, each problem being composed of a matrix of 9 or 16 cells and each problem defining a different concept. The concepts were formed from a set of figures which varied in terms of three properties: shape (square, circle, triangle, diamond), color (red, yellow, green, blue) and size (large or small). The subject, presented with an incomplete matrix, was to discover the concept from the exemplars presented using a pool of figures from which to form the concept. The problems varied in terms of difficulty, with the easier problems presented earlier in the series.

The subject was given four problems on each of seven three-minute trials. Subjects were told to work on the problems in order and to complete one problem before moving on to the next. At the end of the three minute interval, the “teacher” stopped the subject and checked the first problem. If that problem was solved correctly, she provided feedback as described below and moved on to check the second problem. As soon as she encountered a problem that was incomplete, incorrect, or not attempted, she ceased checking (though all problems were recorded). Correct problems were removed and new problems added so that the subject had four problems before him.

### *Procedure*

The task instructions and task feedback were identical for all subjects. Subjects were told that they would be helping in the testing of a new learning task. The nature of the task was explained and a sample problem was presented. Subjects who solved the problem correctly on the first attempt were provided social reinforcement in the supportive condition and simply told they were correct in the nonsupportive condition. Subjects who failed to solve the problem were provided assistance by the “teacher.” This assistance was accompanied by a supportive comment only in the supportive condition. To create a further expectation of supportiveness in the supportive condition, the teacher interacted with the subjects in a friendly manner for a brief period. This interaction did not take place in the nonsupportive condition. All subjects were then given additional task instructions.

The first experimental trial began with the “teacher” setting the stop watch within view of the subject and then telling the subject to begin. The “teacher” sat with her back to the subject during the experimental trials and did not initiate interactions with the subject during that interval. Attention requests on the part of the subject were responded to in a standardized



fashion. For example, if the subject asked a question regarding the task, the “teacher” would respond in the supportive condition by saying, “I want you to work on the task yourself. You have been working well so far.” The supportive comment would not be added in the nonsupportive condition.

After each three-minute interval, the teacher recorded all responses to the four problems. The subject was informed about problems solved correctly and was given social reinforcement in the supportive condition. When the “teacher” encountered an incorrect or incomplete problem, she informed the subject and provided appropriate feedback (“This problem is wrong”, “You have not completed this problem”, “You have not attempted this problem”). This feedback was accompanied by a supportive comment in the supportive condition. Following the seventh trial, the teacher briefly interacted with the subject and provided all subjects with reassurance regarding their performance.

### *Dependent measures*

Two types of dependent measures were used in the study, performance measures and behaviour measures. Two of the performance measures were treated as indices of performance accuracy: total number of problems correctly completed over the seven trials (Correct) and the number of problem cells correctly filled on a trial relative to the number of cells attempted (RelCorrect). The latter measure was averaged over the seven trials. The other two performance measures were treated as persistence indices: total number of problems completed across the seven trials (Completed) and the number of cells attempted on a trial relative to the number of cells available on the trial (RelAttempted). The latter measure was averaged across the seven trials.

The behavioural measures were derived from the video tapes which presented a record of the subject’s behaviour from Trial 1 through Trial 7. Three basic time measures were taken from the tapes: total time active (Active), defined as subject actively manipulating materials; total time passive (Passive), defined as subject looking at material but not actively manipulating; and total time distracted (Distracted), defined as all other activities. Active is treated as a direct measure of attention and Distracted treated as a direct measure of inattention. It is recognized that some ambiguity might attach to the Passive measure.

## *Results*

### *Reliability and validity data*

Reliability data for the behavioural measures are in the form of interobserver reliabilities calculated for two observers on a sample of 17 trials. The reliability coefficients were .98 for Active and .96 for Passive.

Validity data for the supportiveness manipulation were taken from the video tapes. A count was made of the number of task relevant comments, socially reinforcing comments, and supportive comments made by the “teacher” during the six intertrial intervals. A sample of 18 subjects, nine from each of the two conditions, was employed in the count. As expected, the number of task relevant comments did not differ greatly between the two conditions, 100 in the nonsupportive and 102 in the supportive condition.



There were, however, the expected differences in frequency of supportive and socially reinforcing comments. Only one such comment was recorded in the nonsupportive condition, while a total of 88 were recorded in the supportive condition. This represents an average of 1.64 such comments for each subject in each of the six intertrial intervals.

*Relations among dependent measures*

Intercorrelations on the dependent measures are presented in Table 1. The significant negative relations between the accuracy measures (Correct and RelCorrect) and the persistence measures (Completed and RelAttempted) were unexpected but are consistent with a pattern described below. Two of the behavioural measures, Active and Distracted, correlated significantly with the Completed measure. High levels of problem completion were associated with low levels of active task involvement and high levels of distractability. In summary, it appeared that subjects who spent a high percentage of time in active task involvement completed relatively few problems but were more accurate than those subjects displaying higher levels of distraction.

TABLE 1  
INTERCORRELATIONS BETWEEN DEPENDENT MEASURES

	Completed	RelAttempted	Correct	RelCorrect	Active	Passive
RelAttempted	.94**					
Correct	-.29*	-.29*				
RelCorrect	-.43**	-.43**	.39**			
Active	-.42**	-.38**	.02	.01		
Passive	.22	.18	.09	.08	-.89**	
Distracted	.54**	.51**	-.19	-.18	-.61**	.18

\*  $p < .05$  (two-tailed test)  
\*\*  $p < .01$  (two-tailed test)

TABLE 2  
CORRELATIONS AND PARTIAL CORRELATIONS BETWEEN TASC SCORES  
AND DEPENDENT MEASURES (N=72)

	TASC	TASC (DSC controlled)
Completed	.33**	.32**
RelAttempted	.32**	.35**
Correct	-.31**	-.29**
RelCorrect	-.19*	-.21*
Active	-.20*	-.06
Passive	.11	.01
Distracted	.24*	.15

\*  $p < .05$  (one-tailed test)  
\*\*  $p < .01$  (one-tailed test)

Relations between TASC scores and dependent measures

Table 2 presents intercorrelations between TASC scores and the dependent measures along with the correlations that were obtained where the effect of DSC were partialled out. The correlations are based on the entire set of 72 subjects. A one-tailed test was employed since there were *a priori* hypotheses with respect to direction of effect.

It can be seen from Table 2 that significant negative relations obtained between TASC scores and the accuracy indices. It can also be observed that significant positive relations obtained between TASC scores and the two persistence measures, Completed and RelAttempted. High test anxiety scores were associated with relatively high levels of problem completion and relatively low levels of performance accuracy. Significant relations between the personality scores and two of the behavioural measures, Active and Distracted, were also obtained, though the levels of significance were not maintained where DSC was used as the covariate. In general, high TASC scores were associated with relatively low levels of active task involvement and relatively high levels of distraction.

Table 3 presents a comparison of the TASC-dependent measure relations for two sexes. While the direction of relations between TASC scores and the various measures is the same for both sexes and follows the pattern outlined above, the test scores are more highly correlated with performance for female subjects than for male subjects. However, TASC scores showed no systematic relation to the behavioural measures in the case of females, while they showed the predicted relations in the case of males. The differences between *rs* approached statistical significance in three cases: RelCorrect ( $Z = 1.64, d.f. = 33, p < .06$ ), Active ( $Z = 1.54, d.f. = 33, p < .07$ ), and Distracted ( $Z = 1.48, d.f. = 33, p < .07$ ).

TABLE 3  
CORRELATIONS BETWEEN TASC SCORES AND DEPENDENT MEASURES BY  
SEX OF SUBJECT

	TASC Scores	
	Male Subjects (n=36)	Female Subjects (n=36)
Completed	.27	.44**
RelAttempted	.25	.44**
Correct	-.24	-.41**
RelCorrect	-.01	-.39**
Active	-.41**	.05
Passive	.29*	-.06
Distracted	.38**	.03

\*  $p < .05$  (one-tailed test)  
\*\*  $p < .01$  (one-tailed test)

Effect of the supportiveness manipulation

It had been predicted that the supportiveness manipulation would have an effect on the relation between TASC scores and performance. Specifically, it had been predicted that there would be a stronger relation between the

TABLE 4  
CORRELATIONS BETWEEN TASC SCORES AND DEPENDENT MEASURES BY  
CONDITIONS

	TASC Scores	
	Supportive Condition (n=36)	Nonsupportive Condition (n=36)
Completed	.51**	.12
RelAttempted	.46**	.19
Correct	-.37**	-.26
RelCorrect	-.36**	-.04
Active	-.31*	-.05
Passive	.18	.03
Distracted	.35**	.07

\*  $p < .05$  (one-tailed test)  
\*\*  $p < .01$  (one-tailed test)

variables in the nonsupportive condition than in the supportive condition. Table 4 presents a comparison of the correlations obtained in the two conditions. It can be seen from the table that the direction of relations is the same in both conditions, but that the relations are stronger in the supportive condition than in the nonsupportive condition. A comparison of the  $r$  pairs yielded a significant difference in one case, Completed ( $Z = 1.80, d.f. = 33, p < .05$ ), and approached significance in another case, RelCorrect ( $Z = 1.38, d.f. = 33, p < .09$ ).

*Discussion*

TASC scores were found to be associated with performance accuracy within the complex learning task employed in this study. This finding is consistent with the results reported by Doyal and Forsyth (1972), Lekarczyk and Hill (1969) and others and lends further support for the predictive validity of the TASC scale. The data of the study also support the attentional hypothesis offered by Wine (1971) and thereby provide some insight into the dynamics of the anxiety-performance relation. As had been predicted, TASC scores were associated negatively with active task involvement and positively with distracted behaviour. The generality of these results is affected, of course, by the outcome of the sex and supportiveness analyses.

Relations between TASC scores and the performance measures were in the same direction for male and female subjects, but the correlations were higher for females than for males. This is consistent with Campeau's (1968) finding that anxiety scores predicted performance better for females than for males. The finding that TASC scores were more highly correlated with behavioural measures for males than for females contradicts findings that girls are less reluctant to acknowledge anxiety on questionnaires (Phillips, Martin, & Meyers, 1972; Ruebush, 1963), but the finding is consistent with reports that boys are more likely to display overt signs of anxiety (e.g., Sarason et al., 1960).



It had been hypothesized that the supportiveness manipulation would function to alleviate anxiety in the high anxious subject and that, therefore, there would be a weaker relation between anxiety scores and both performance and behaviour within the supportive than the nonsupportive condition. The findings were contrary to prediction. While the direction of relations was the same in both conditions, the relations were consistently stronger in the supportive than in the nonsupportive condition. The analyses do not, of course, provide a conclusive test of the issue, but the suggestion is that a higher degree of anxiety was aroused in the supportive condition than in the nonsupportive condition, and that this higher level of anxiety is reflected in both behaviour and performance.

A possible explanation for the above finding relates to the nature of the supportiveness manipulation. While subjects within the supportive condition were provided with social reinforcement and emotional support, the manipulation may have also involved a communication of expectations. Among comments made by the "teacher" in the supportive condition were "I know you can do these problems", "I know you will do well", etc. These comments were designed to provide reassurance to the subject, but they may have also functioned to communicate high expectations and thereby have enhanced the evaluative nature of the situation. These findings suggest that further attention should be paid to the effects of different forms of social support on the highly anxious subject.

There are, of course, a number of factors operating to limit the generality of these results, and it would be desirable to replicate the study within a classroom setting with a more direct measure of attention. Within those limits, however, the results are viewed as interesting from a number of points of view. The findings of the study again affirm that test anxiety relates negatively to the performance of the child within evaluative settings. The data also lend support to the hypothesis that inattentiveness to task demands constitutes a key factor in the test anxiety effect and thereby lend credence to those intervention programmes (e.g., Phillips et al., 1972) which stress attention training for the highly anxious child. Finally, the suggestion that emotional support accompanied by the communication of high expectations may have the effect of enhancing anxiety might serve as a caution to teachers, counsellors and parents dealing with anxious children.

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## Teachers' Attributions of Student Ability

*The purpose of this study was to examine the effects of varying orders of pupil achievement information on teachers' attributions of pupils' abilities. Two ages of pupils were used as stimulus persons (SPs), a 5-year-old male pupil and an 18-year-old male pupil. Two orders of achievement information were used: ascending success (AS) and descending success (DS). The subjects were 60 student teachers, randomly selected from volunteers and randomly assigned to four treatment groups. A two-by-two factor design was used with two levels of each factor. Factor A was age of pupil (a five-year-old and an eighteen-year-old) and Factor B was order of achievement information (ascending success and descending success).*

*Three dependent variables were examined in the main part of the study: recall of success, prediction of future success, and estimate of ability. A two-way analysis of variance revealed a strong overall primacy effect on order of information effect on two of the three dependent variables, prediction and recall, and a significant but not as strong primacy effect on the third dependent variable, estimate of ability. A posteriori Scheffé tests revealed that for all dependent variables, the primacy effect was stronger for the children-pupil conditions than for the adult-pupil conditions.*

*The correlations among the three dependent variables was negative and significant between prediction and estimate of ability, and was positive and significant between recall and estimate of ability.*

*Subjects were asked to estimate the level of confidence with which they made their predictions and ability estimate. They also completed a locus of control (Rotter, 1966) questionnaire and a cognitive complexity matrix (Bieri et al., 1966). Correlational analysis revealed that cognitive complexity was negatively and significantly related to degree of confidence, and was positively and significantly related to prediction. As a uni-dimensional trait, locus of control was not significantly related to any of the dependent variables. (Dr. Therrien is Assistant Professor in the Department of Elementary Education, The University of Alberta.)*

Since the publication of Rosenthal and Jacobson's research in 1968, a number of research studies have been designed to examine further the hypothesis that a teacher's expectations of a pupil may affect that pupil's



classroom behaviour. Twenty-five such studies reviewed by Baker and Crist (1971) have produced evidence supporting the “expectancy effect” hypothesis. However, little is known about how or why the effect occurs. What processes are operating which result in teachers’ expectancies being fulfilled? How do expectancies develop? Particularly, how do erroneous expectancies develop?

The purpose of this study was to examine the latter question: How do erroneous expectancies develop? In particular, teachers’ perceptions of pupils were examined in relation to their attributions of ability to those pupils. Attribution refers to the process by which an individual (in this case, a teacher) attributes causes to the behaviour of others (in this case, pupils). Though behaviour may be attributed to many internal and external causes, this study dealt only with attribution of ability, a single internal cause. An attempt was made to discover whether the *order* of presentation of information about the pupil’s problem solving behaviour would induce erroneous perceptions of the behaviour and biased attributions of ability. The pupil behaviour “information” was presented on a video tape in which a pupil solved a sequence of ten problems. Each problem was a multiple choice question. Four solutions were presented and the pupil was required to select the correct solution. The *order* of the segments of the tape was systematically varied.

In summary, the problem being dealt with in the study may be phrased as follows: How does order of presentation of information affect teachers’ attributions of pupil abilities?

*The Theoretical Framework*

The works of Fritz Heider (1944, 1954a, 1954b, 1958) in the area of person perception have stimulated research on attribution, the process of assigning causes to the behaviour of others. In Heider’s words, attribution is the “linking of an event with its underlying conditions” (Heider, 1958, p. 89). These underlying conditions may be seen as internal to the persons being perceived or external, that is, in the environment.

A survey of the research literature in social psychology results in several propositions about the nature of attribution.

1. The attribution to causes may be made to internal (personal) causes or to external (impersonal) causes. Experimental work has revealed a tendency to attribute actions to internal causes even in the face of evidence of external causes (Jones & Harris, 1967).

2. Causal attribution differs depending on the level of ego-involvement. Observers more frequently attribute causes to the actor, while actors attribute causes to the environment. This is particularly so in the case of assigning the causes of failure (Johnson, Feigenbaum & Wieby, 1964; Beckman, 1970).

3. Success and failure may be attributed to ability, luck, effort or task difficulty. The four elements may be represented diagrammatically in the following way:

stability	Locus of control	
	internal	external
stable	ability	task difficulty
unstable	effort	luck

The research indicates that consistency in performance yields attribution to ability and task difficulty (Frieze & Weiner, 1971) and that very difficult or very easy tasks yield attributions to ability and/or luck whereas tasks of intermediate difficulty yield attributions to effort (Weiner, Hickhausen, Mayer & Cook, 1972).

4. Attribution of ability appears to be affected by the order or presentation of the success/failure information. A primacy effect results when the information is presented in a continuous sequence. When the sequence is interrupted, either by irrelevant activity or by forced interim impression formation, the primacy effect is either weakened or a recency effect results (Luchins, 1957a, 1957b, 1958).

5. When adults are viewing the problem solving behaviour of other adults, attribution of ability is influenced by a primacy effect (Jones, Rock, Shaver, Goethals & Ward, 1968).

6. Both the cognitive complexity of the individual and the perceived locus of control may affect the attributions he makes (Streufert & Streufert, 1969; Rosencrantz & Crocker, 1965; Mayo & Crockett, 1964; Petronko & Perin, 1970; Feather, 1967).

The studies cited above were conducted with adults as subjects and adults as stimulus persons. The present study was conducted with teachers as subjects and with pupils as stimulus persons.

Design and Procedures

The purpose of this study was to examine teachers' perceptions of pupil ability and to determine whether their perceptions are distorted in any systematic way by the *order* or *sequence* of information they receive about the pupil.

Sixty students were randomly selected from 68 volunteers who were enrolled in spring session elementary education courses. The 60 students were then randomly assigned to one of four treatment groups. Each group saw a video tape presentation of a pupil involved in solving 10 problems. The tape showed the pupil and tester, the problems, and the degree of success or failure on the part of the pupil in solving the problems.

The video tapes viewed by groups 1 and 2 showed a five-year-old involved in solving 10 shape pattern problems. Both tapes were constructed from exactly the same sequence. The *only* difference between the tapes was the order of the insertion of the words "successful" or "unsuccessful" (with attending narration) after each problem. That is, the viewer was told after viewing each problem segment whether the pupil was successful or unsuccessful in solving the problem. Each group of subjects saw the same sequence of problems but a different sequence of successful and unsuccessful information. The two patterns of sucessful/unsuccessful information could be pictured thus:

	tasks									
	1	2	3	4	5	6	7	8	9	10
tape 1	ns	ns	ns	s	ns	s	ns	s	s	s
tape 2	s	s	s	ns	s	ns	s	ns	ns	ns

Though the order of successful/not successful information varied, the actual success rate on the two tapes was the same: five out of 10 correct. Group 1 saw a pattern of *increasing success* and group 2 saw a pattern of *decreasing success*.

The video-tapes viewed by groups 3 and 4 followed the same general pattern as tapes one and two except that they presented an 18-year-old solving analogies. Again the two tapes were exactly the same except for the order of success/failure information.

	tasks									
	1	2	3	4	5	6	7	8	9	10
tape 3	ns	ns	ns	s	ns	s	ns	s	s	s
tape 4	s	s	s	ns	s	ns	s	ns	ns	ns

The success rate was 5 out of 10 on both tapes, with tape three depicting *increasing success* and tape four depicting *decreasing success*.

Following the video tape, subjects were presented with a questionnaire requiring three main responses:

1. Given 10 additional problems similar to those on the video tapes, each subject was asked to *predict* for each of the 10 problems the success of the pupil they saw on the tape. Possible range: 0 to 10 inclusive.
2. Each subject was asked to *recall* how many successes the pupil had actually achieved on the tape. Possible range: 0 to 10 inclusive.
3. As well, each subject was asked to *estimate*, on an eleven-point scale, the ability level of the pupil. Possible range: 0 to 10 inclusive. In addition, subjects completed the Bieri test of cognitive complexity (Bieri, Atkins, Briar, Leaman, Miller & Tripodi, 1966) and the Rotter I/E test of locus of control (Rotter, 1966).

Results

A two-way analysis of variance was conducted on each of the three criterion measures: prediction, recall, and estimate of ability. Main effect A represents age of pupil and main effect B represents the order (ascending or descending) of the information presented.

TABLE 1  
PREDICTION OF SUCCESS: ANALYSIS OF VARIANCE

Source	S.S.	d.f.	M.S.	F-ratio	Probability
A (pupil)	.88	1	.88	.45	.5
B (order)	18.70	1	18.70	9.47	.003
AB	4.35	1	4.35	2.20	.14
Error	94.79	48	1.98		

The analysis of variance yielded several sets of results. The statistical significance of the order effect was established. The direction of the order effect was determined by examining the table of means (Table 2).



TABLE 2  
PREDICTION OF SUCCESS: TABLE OF MEANS

	B1 (ascending)	B2 (descending)
A1 (5-year-old)	4.077	5.857
A2 (18-year-old)	4.917	5.538

Information from the two tables indicates a significant primacy effect in the prediction of success.

TABLE 3  
RECALL OF SUCCESSES: ANALYSIS OF VARIANCE

Source	S.S.	d.f.	M.S.	F-ratio	Probability
A (age)	.73	1	.73	1.30	.26
B (order)	19.87	1	19.89	35.28	.00000
AB	.005	1	.005	.009	.92
Error	27.04	48	.56		

TABLE 4  
RECALL OF SUCCESSES: TABLE OF MEANS

	B1 (ascending)	B2 (descending)
A1 (5-year-old)	4.39	5.64
A2 (18-year-old)	4.17	5.39

The statistical significance of the order effect was established. The direction of the order effect was determined by examining the table of means (Table 4). Information from the two tables indicates a significant primacy effect in the recall of successes.

TABLE 5  
ESTIMATES OF ABILITY: ANALYSIS OF VARIANCE

Source	S.S.	d.f.	M.S.	F-ratio	Probability
A (age)	36.66	1	36.6	18.93	.00
B (order)	7.46	1	7.46	3.85	.05
AB	1.06	1	1.06	0.55	.46
Error	92.94	48	1.97		

The statistical significance of the age of pupil effect was established. The order effect approaches significance. The table of means indicates the direction of the effects (Table 6). Estimates of ability of the child-pupil were significantly higher than estimates of ability of the adult-pupil. Again, a primacy effect is indicated by the means.

The Scheffé procedure (Winer, 1971) was used to compare individual groups in an attempt to locate the differences which contributed to the

TABLE 6  
ESTIMATES OF ABILITY: TABLE OF MEANS

	B1 (ascending)	B2 (descending)
A1 (5-year-old)	5.39	5.86
A2 (18-year-old)	3.42	4.46

ANOVA results. At the suggestion of Edwards (1972, p. 150) the  $\alpha$  level was set at .90 to counteract somewhat the conservatism of the Scheffé test. The results are reported in Tables 7, 8, and 9.

TABLE 7  
PREDICTION OF SUCCESS: SCHEFFE TEST

	Mean	S.D.	(Scheffé) F obs	F critical
Group 1 (n=13)	4.08	1.50	10.82	6.69
Group 2 (n=14)	5.86	1.03		
Group 3 (n=12)	4.92	2.02	1.22	6.69
Group 4 (n=13)	5.54	.88		

TABLE 8  
RECALL OF SUCCESS: SCHEFFE TEST

	Mean	S.D.	(Scheffé) F obs	F critical
Group 1 (n=13)	4.39	.65	18.94	6.69
Group 2 (n=14)	5.64	.75		
Group 3 (n=12)	4.17	.94	16.44	6.69
Group 4 (n=13)	5.39	.65		

The results of the Scheffé tests indicate that for the prediction of success variable (Table 7), the child-pupil condition accounted for the major portion of the order differences found in the analysis of variance. The differences between the adult-pupil conditions are in a primacy direction but do not reach statistical significance.

Table 8 indicates that recall of success is significantly different (in a primacy direction) in both the child-pupil and adult-pupil conditions.

The child-pupil vs. adult-pupil differences in estimates of ability hold true across both ascending and descending conditions (Table 9). The primacy effect tendency noted in the analysis of variance results is weakened when individual groups are compared. The tendency is in a primacy direction but does not reach statistical significance in either comparison (Table 9).

TABLE 9  
ESTIMATES OF ABILITY: SCHEFFE TEST

	Mean	S.D.	(Scheffé) F obs	F critical
<u>Order Effect</u>				
Group 1 (n=13)	5.39	1.89	.78	6.69
Group 2 (n=14)	5.86	1.17		
<hr/>				
Group 3 (n=12)	3.42	1.31	3.52	6.69
Group 4 (n=13)	4.46	1.05		
<hr/>				
<u>Age Effect</u>				
Group 1 (n=13)	5.39	1.89	12.48	6.69
Group 3 (n=12)	3.42	1.31		
<hr/>				
Group 2 (n=12)	5.86	1.17	6.78	6.69
Group 4 (n=13)	4.46	1.05		

The criterion measures were each considered to be tapping the same underlying construct, attribution of ability. However, it appears that each of the measures is tapping a different variable and no one alone can be considered the sole measure of attribution of ability.

TABLE 10  
CORRELATIONS AMONG CRITERION MEASURES

	Prediction	Recall	Estimate
Prediction	1.0	.205	-.28 <sup>a</sup>
Recall		1.0	.29 <sup>a</sup>
Estimate			1.0

<sup>a</sup> Correlation significant at .05 level.

There was no significant correlation between the criterion measures (which were transformed to susceptibility to primacy effect scores) and the cognitive complexity and locus of control measures.

Discussion of Results

In all instances, the data support the notion that the subjects' final attributions are influenced by their initial impressions. Under some conditions the influence is very strong.

The recall scores indicate a strong primacy effect regardless of the age of the stimulus person. This finding not only supports the findings of Jones et



al. (1968) but adds two additional pieces of information. First, adults who are or intend to be teachers do not behave differently with respect to primacy influences on recall than do adults who are not teachers. Second, the age of the stimulus person does not reduce primacy effects on recall.

When predicting future successes, subjects' prediction scores indicate a primacy effect which is very strong in relation to a child-pupil and evident but not strong in relation to an adult-pupil. The strong primacy effect in prediction found by Jones et al.(1968) occurred when the prediction involved information on 30 tasks whereas this study involved prediction based on viewing only ten tasks.

The quantity of information available to the subjects of this study who viewed the adult-pupil may have been too little (by comparison with the Jones subjects) thus the primacy effect, though evident, was weak. Since the primacy effect was strong when subjects were viewing the child-pupil, it may be that the quantity of information provided to the child-pupil subjects need not be as great as for adult-pupil subjects. In addition, the subjects of this study were all studying elementary education (i.e., teaching of children under 12 years of age) and thus may focus differently on adult-pupils than on child-pupils.

When estimating ability levels, subjects' estimates indicate a significant overall primacy effect which is stronger for child-pupil conditions than adult-pupil conditions. The strength of the primacy effect here is far less than for the other dependent variables. Again the subjects viewing adults were perhaps less susceptible to a primacy effect than were subjects of the Jones et al. (1968) study; less information may be the reason.

Overall, a primacy effect in attribution of ability was established. The fact that subjects were teacher trainees did not appear to affect the processes. In fact, whereas elementary education students might be expected to resist a primacy influence because of their knowledge of children, the groups who viewed the child-pupil appeared to have been more strongly influenced.

An interesting finding for which there appears to be no precedent in the literature, was that subjects predicted significantly higher ability levels for the child-pupil than for the adult-pupil, regardless of order effects. One plausible explanation is that the subjects of the study were studying elementary education. Thus, when faced with interpreting the behavior of an 18-year-old pupil, the reference point was their knowledge of themselves rather than knowledge of pupils of that age. This may have induced subjects to assess their own abilities in relation to the tasks, and compare the adult-pupils' performance (and ability) with their own. Finding the tasks quite simple themselves, they then estimated low ability on the part of the adult-pupil. This sort of comparison-with-self was unlikely to have occurred when subjects were viewing the 5-year-old pupil.

### *Implication for Teaching and Research*

The influence of the primacy effect on a teacher's impressions of children can impair the teacher's effectiveness. Though this premise has yet to be thoroughly explored through research, one can conceive of a variety of ways in which erroneous judgments might affect the teaching-learning process.

As teachers become more involved in curriculum development, their diagnostic skills will become increasingly important in overall planning. To match the curriculum to the needs of the child requires accurate assessment of these needs. Erroneous judgments in assessment can result in a poor match of program to child and the child's learning may be impaired.

A child's self-concept grows as he sees himself reflected in the behavior of significant others toward him. If a teacher's impressions of a child are biased, his behavior toward the child may cause the child to develop the same biases towards himself. He may not only develop an inaccurate self-concept, but one which is negative as well.

The child who consistently creates the impression of being a "slow starter" may never be able to shake this impression. Not only might he live under the stigma of "slow starter" with one teacher, but with all teachers as records and informal information are passed from one teacher to the next.

It would appear that erroneous impressions of any kind could be detrimental to the child, but primacy effect errors may be much more vile than other kinds. Primacy effect errors could result in a teacher never recognizing the learning which is taking place (or perhaps not taking place). Recency errors, on the other hand, may not negate learning which is taking place if the child is increasingly successful. However a productive balance would seem to be a situation in which impressions are accurate but multivariate and flexible, capable of addition and modification as new information is acquired and meshed with all previous information. This would appear to require a relatively high degree of cognitive complexity in the individual teacher. If tentative recommendations for action were to be made on the basis of this study, they would be the following:

1. Teachers need to be made explicitly aware (both in preservice and inservice preparation) of the primacy effect and how it operates in the attribution of ability. They must be alerted to the possible dangers of allowing first impressions to distort attributions.

2. If it can be assumed that Luchins' work holds true for teachers and children, continuous teacher anecdotal record keeping on individual children (with an emphasis on factual information being continually added) may serve to dilute the primacy effect.

3. If the element of cognitive complexity, which induced the subjects to hesitate in making strong attributions, was a greater degree of differentiation, then deliberate attempts must be made to help teachers become increasingly multidimensional in forming their impressions of the individual children.

#### *Directions for Further Research*

The results of the study would seem to indicate three fronts on which further research needs to be conducted.

*Attribution of ability and teaching functions.* Since this study was related to only one teaching function, namely assessment through observation, further studies need to be conducted in connection with other teaching functions. The primacy effect may extend beyond impression formation to planning of curricula following diagnosis, to interaction with children, to affection for the children, and to evaluating the work of



children. The active involvement in teaching may affect the teacher's attributions differently than does the observation of teaching. Studies similar to this one could be conducted which add further teaching functions to the design.

*Eroding the primacy bias.* Replication of Luchins' work as it relates to teachers and children would be most useful. Knowledge of how teachers might learn to avoid the primacy effect would have implications for teacher preparation. A better understanding of the relationship of cognitive complexity to attribution would have implications not only for teacher education but perhaps for screening and selection as well.

*Attribution theory and teaching.* This study dealt with *one* way in which attribution of *ability* can be influenced. Many other aspects of attribution theory deserve attention. Perception of role behavior may affect attribution of ability. Order of information may affect the attribution of attitude. The relationship of attribution of ability and attribution of attitude is virtually unknown. All of these relationships and many others may be relevant to education.

A program of further experimental and field research is needed to provide the information necessary to answer the many questions about the relationship between attribution and education.

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## An Examination of Cumulative Folder Information Used By Teachers in Making Differential Judgments of Children's Abilities

*One of the persisting aspects of the teacher expectancy literature is the degree to which various sources of naturalistic information influence the teacher's expectancy set. A questionnaire, designed to examine the effects of the child's sex, attractiveness, ability, and home background upon teacher's expectations, was administered to 180 male and 310 female public school teachers in eight school systems.*

*Teachers were asked to make five predictions about a child described in the questionnaire, including level of creative ability, intellectual ability, type of educational grouping, degree of vocational training expected to be obtained, and quality of teacher-student interactions. The analysis of the data indicated several individual and multiple influences of characteristics of children upon the predictions made by teachers. (Dr. Adams is Assistant Professor of Family and Human Development at Utah State University; Dr. Cohen is Assistant Professor of Child Development and Family Studies at Purdue University.)*

Research on the effects of teacher expectations and student performance has proliferated in the last few years. Following the original study by Rosenthal and Jacobson (1968), several investigators have attempted to replicate the "self-fulfilling prophecy" hypothesis (Rosenthal, 1969; Claiborn, 1969; Brophy & Good, 1970; Fleming & Antonnen, 1971; Jose & Cody, 1971; Rothbart, Dalfen & Barret, 1971; Mendels & Flanders, 1973). A close examination of this research suggests that approximately half of the studies support the original Rosenthal and Jacobson research, while the remaining half does not. However, Rosenthal (1971a, 1971b, 1973) and Brophy and Good (1974) have recently summarized research from both laboratory and naturalistic settings which indicates strong support for the

existence of an interpersonal expectancy effect across several situational settings.

One of the questions which remains to be investigated is, "To what degree do various sources of information influence the development of the teacher's judgments about which children are expected to achieve or do well in school?" Several investigators (Kaplan & Sprunger, 1967; Beez, 1970; Mason, 1973) have shown that information found in children's psychological evaluation reports can have influential effects on teacher's attitudes and behavior. One common finding regarding such information has been that teachers will express lower expectations for a student following the reading of negative rather than positive evaluations about that student. Paralleling these investigations, Clifford and Walster (1973), using materials which they constructed, report that when shown pictures of children of varying degrees of physical attractiveness but with similar report cards, teachers' expectancies were strongly influenced by the child's physical attractiveness (i.e., highly physically attractive children were more often predicted to be high on the following attributes than were less physically attractive children: intelligence, interested parents, education potential, and peer relations). Likewise, LaVoie and Adams (1974) and Adams and LaVoie (1974), using the technique reported by Clifford and Walster, demonstrated that report card grades regarding the child's conduct or citizenship behavior have apparent biasing effects on teachers' expectancies. Furthermore, these two studies suggest that information about a child's conduct may be more influential than his degree of perceived physical attractiveness when the two factors are present in a given situation.

Therefore, the present study was undertaken in an attempt to evaluate several sources of information found in students' cumulative folders on teachers' expectancy sets. Types of information included for evaluation consisted of the child's degree of attractiveness, ability, sex, and family background.

### *Method*

#### *Subjects*

The head administrators of twelve school districts in two midwestern states were contacted by telephone to obtain permission to use teachers from their district in the study. Eight of the administrators agreed to permit their teachers to participate in the study and provided a directory which listed the teachers in the system. The number of elementary school teachers in each of the eight school districts ranged from 80 to 1,000. Twenty percent of the teachers listed in each directory were randomly selected and requested by mail to serve as subjects in the study. Of this sample, 81% agreed to participate.

A total of 490 elementary school teachers (180 men and 310 women) participated in the study. All teachers held at least a four-year college degree and had 5.5 years of teaching on the average. The mean age of these teachers was 36.8 with standard deviation of 7.1 years.

#### *Cumulative Folder Information*

Official-looking cumulative folders similar to those being used in each of the school districts were assembled by a local printing company for use in



this study. Each folder included report card information for kindergarten through second grade pertaining to academic and social or citizenship-type behavior. All such information indicated a child who was performing slightly above average academically. Included in the record were statements by the child's physician on his health and immunization history (all such medical data indicated only a healthy child). These kinds of cumulative folder data were held constant across all folders.

*Level of Attractiveness and Sex of Child.* Sex of the child and level of physical attractiveness were varied in each of four categories: A photograph of a smiling boy or girl of high or low physical attractiveness (as determined from the combined ratings of a previous study by LaVoie and Adams, 1974) was included in each of the cumulative folders (such photographs were commonly included in each of the sampled schools, a practice, incidentally, which is quite common throughout the United States).

*Folder statement on the home.* Additional information regarding the child's family background was also varied. Statements about this type of information were taken *verbatim* from actual cumulative folders currently being used in a school district which did not participate in the present study. One set of statements included remarks indicating that the child came from either a middle-class home climate:

\_\_\_\_\_ comes from a highly educated home. His mother completed her Bachelor's degree and his father has a Master's degree in business. The father is employed in a high-status position (executive administration), while the mother is a homemaker. Mrs. \_\_\_\_\_ has shown much concern for \_\_\_\_\_'s school efforts and activities.

or from a lower-class home climate:

\_\_\_\_\_ comes from a home where neither parents read. Mrs. \_\_\_\_\_ has completed the equivalent of an eighth grade education. No records are available concerning the father. The mother is rarely employed, while the father is apparently absent or not living with the family. Mrs. \_\_\_\_\_ has shown only minimal concern for \_\_\_\_\_'s school efforts and activities.

*Folder statement on the child.* The second set of information included a statement about the child's general ability. These statements indicated either a negative comment:

\_\_\_\_\_ has problems in communicating with the teacher and other children in the classroom. \_\_\_\_\_ appears uneasy in interpersonal communications. \_\_\_\_\_ uses an excessive amount of 'street talk' in the classroom. The child has never demonstrated leadership needs. Furthermore the child occasionally comes to class in unkept clothing that is dirty and foul to the nose.

or a positive statement:

\_\_\_\_\_ has demonstrated a remarkable ease in communicating with teachers and fellow students. His verbal skills are to be considered a strong point. Frequently, \_\_\_\_\_ assumes a leadership role, thus providing direction for other students to follow. The child is always neat and clean in appearance.

### *Evaluation Form*

The Teacher Evaluation Form (TEF) was developed to measure the effects of several of the experimental variables on the expectations of teachers towards their pupils. The TEF included a variety of evaluative items, five of which were analyzed for this study. The five items were

designed to assess teachers' predictions of a student's (a) creative ability (b) level of intellectual ability, (c) vocational training ultimately obtained, (d) educational grouping or placement, and (e) quality of teacher-student interaction.

The participating teacher was asked to indicate on a scale of from 1 (indicating a low degree on the attribute) to 6 (indicating a high degree on the attribute) his prediction of the child's creative ability, intelligence, vocational training, and educational grouping. Using a reversed six point scale (1 indicating supportiveness and 6 indicating lack of supportiveness), the teacher-participants were asked to predict the quality of the teacher-student interaction for the child and his classroom teacher.

*Procedure.* The teacher-participants were mailed a cumulative folder containing a picture of a boy or a girl of either high or low physical attractiveness, whose general ability indicated either deficiencies or lack of deficiencies, and who had maintained an above average level of academic achievement for the first three years of school. In addition, these folders contained information about the home background of the child. The teachers were asked to use the TEF to make their predictions or judgments concerning that child. These predictions have been defined for purposes of this study as the "teacher expectancy set."

The following letter of introduction was mailed to each of the teachers to describe the purpose of the study:

The controversy concerning the use of cumulative folder materials has been an issue that remains unresolved. This project is to be one of many research projects attempting to examine the usefulness of cumulative folder data. It is hoped that a systematic program will aid our understanding of the educational usefulness of cumulative folder materials. Please read the Cumulative Folder material and then complete the Teacher Evaluation Form. Your responses will be kept in complete confidence. Upon completion please place the material in the stamped envelope and return to us. Thank you.

### *Results*

The study utilized a 2 (Sex of Teacher) x 2 (Sex of Child) x 2 (Level of Physical Attractiveness) x 2 (Folder Statement on the Home) x 2 (Folder Statement on the Child) factorial design with all factors completely crossed. Separate unequal cell frequencies, univariate analysis of variance were computed for each of the five dependent measures: teacher's predictions of creative ability, level of intelligence, level of attainable vocational training, educational grouping, and quality of teacher communication. A  $w^2$  was calculated for each experimental term to estimate the proportion of variation attributable to that term. An arbitrary decision was made to interpret only those significant  $F$  tests in each of the five models reported in this study which accounted for 2% or more of the total variation for each dependent measure (see Table 1). This additional step was useful in ensuring that all significant  $F$ -ratios which were interpreted would contribute to a meaningful portion of the total variance (i.e., meaningful portion was defined as 2% for this study).

#### *Attractiveness of child.*

The child's level of attractiveness had substantial effects on teachers' expectations for children's academic and educational success. Attractive

TABLE 1  
ANALYSIS OF VARIANCE SUMMARIES OF SIGNIFICANT FACTORS FOR  
EACH OF THE FIVE DEPENDENT VARIABLES

		Sex of Teacher	Sex of Child	Level of Attractive- ness	Folder Statement on Home	Folder Statement on Child	Error
df		1	1	1	1	1	458
Creativity	MS		12.83	12.60	94.36	12.21	.71
	F		18.03*	17.71*	132.64*	17.03*	
	w <sup>2</sup>		.023	.024	.176	.022	
Intelligence	MS		9.04	61.37	129.27		.59
	F		15.24*	103.50*	217.99*		
	w <sup>2</sup>		.017	.116	.245		
Vocational Training	MS			336.16	380.66		1.12
	F			300.04*	339.76*		
	w <sup>2</sup>			.255	.289		
Educational Training	MS			39.06	200.80		.41
	F			95.42*	490.50*		
	w <sup>2</sup>			.082	.421		
Teacher Communication	MS	11.62			196.71		.35
	F	33.10*			560.56*		
	w <sup>2</sup>	.028			.482		

\* $p < .01$

children were viewed as being more creative, intelligent, educationally advanced, and expected to receive higher levels of training than unattractive youth. However, respondents did not feel attractiveness of the child would affect teacher-student communications. (Table 2 contains mean comparisons for all dependent variables.)

*Child's reported ability.*

Expectations for children whose general abilities were described unfavorably in the cumulative folder were viewed by teachers as being more likely to be creative than children who were described by favorable statements. However, teachers were not found to hold differential expectations for children based upon this information for the remaining dependent measures with the exception of one higher-order interaction. Graphical representations of the interaction between the three factors of Sex of Child, Level of Attractiveness, and Folder Statement on the Child's Ability are presented in Figure 1. Simple effects analysis of the B x C x E interaction revealed that teachers predicted that females who are low in physical attractiveness were viewed as more creative when the description of their general ability was unfavorable than when it was favorable ( $F = 3.95$ ,  $df = 1,458$ ,  $p < .05$ ). No other significant differences were found among the groups in this interaction.

*Family background.*

The statement about the child's home life had the greatest single effect upon teachers' expectation sets for children's academic success. Those children who were described in their folders as living in middle-class home climates were predicted to be more creative, brighter, more likely to obtain

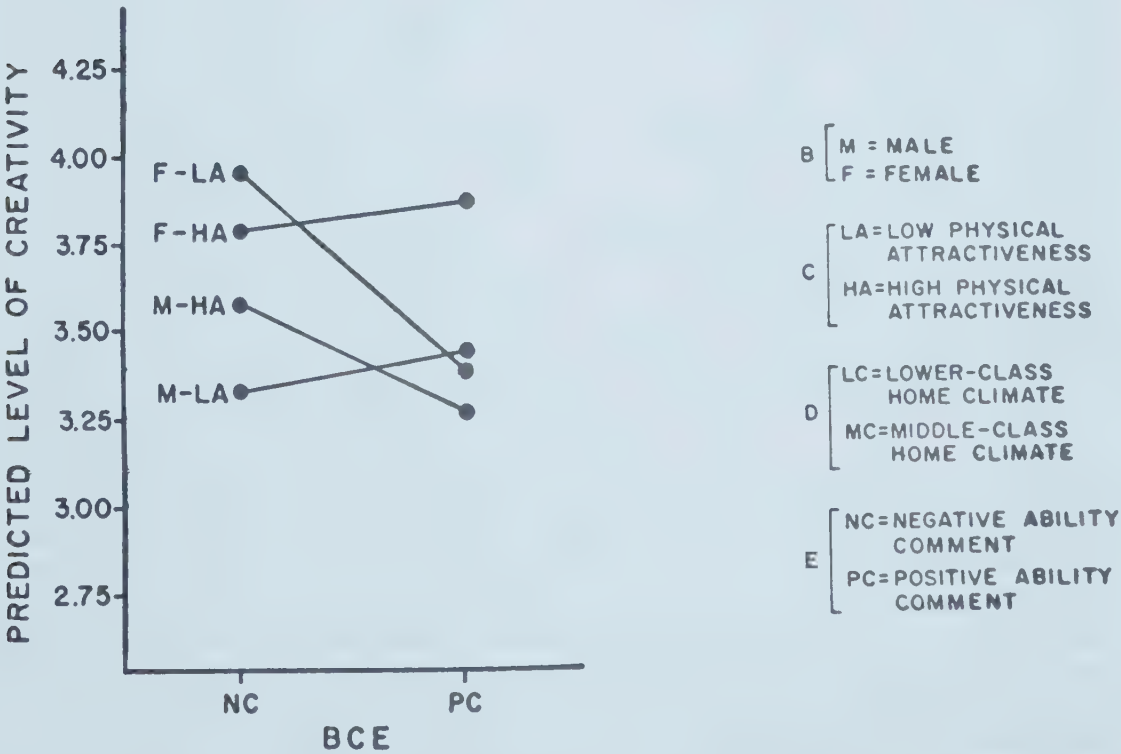


TABLE 2  
MEAN SCORES ON ALL DEPENDENT VARIABLES

	Sex of Teacher		Sex of Child		Level of Attractiveness		Folder Statement on Home		Folder Statement on Child	
	Male	Female	Boy	Girl	Low	High	LC	MC	Neg.	Pos.
Creativity	3.56	3.54	3.38	3.74*	3.48	3.62*	3.11	3.99*	3.64	3.47*
IQ	2.69	2.80	2.60	2.91*	2.42	3.08*	2.25	3.25*	2.78	2.72
Vocational Training	2.78	2.65	2.62	2.82	1.93	3.51*	1.86	3.58*	2.70	2.73
Educational Grouping	3.81	2.85	2.76	2.91	2.59	3.07*	2.20	3.46*	2.86	2.81
Teacher Communication <sup>1</sup>	2.06	1.82*	1.99	1.88	1.98	1.89	2.57	1.30*	1.93	1.95

\*  $p < .01$   
<sup>1</sup> This measure is counter-weighted, low scores indicate high support, etc.

FIGURE 1  
INTERACTION OF THE THREE FACTORS OF SEX OF CHILD, LEVEL OF ATTRACTIVENESS, AND FOLDER STATEMENT ON THE CHILD



higher levels of vocational training, and to be placed in higher educational groups than were children who were described as living in a lower-class home climate. Furthermore, children from lower-class home climates were predicted to receive less supportive interactions from their teachers than were children from middle-class backgrounds.

*Sex of teacher and sex of child.*

Few sex related differences were found in this study. Male and females teachers were found to report significant differences on one measure only. Male teachers predicted less supportive teacher interaction than did female teachers. Although there is no way to account for this difference by the data, one could speculate that this difference may be due to differences in the degree of nurturance that male and female teachers hold for their students. In addition, two significant differences were found in teachers' predictions of boys' and girls' perceived characteristics. Girls were viewed as more creative and intelligent than boys.

*Discussion*

The basic design of this research consisted of teachers responding to cumulative folder information where the child's academic grades were held constant for all children; however, the child's sex, attractiveness, home background, and former teacher statement of the child's ability were systematically altered. Therefore, teachers' judgment of children's abilities were selectively limited to four independent characteristics which were manipulated in the cumulative folder information. Hence, teachers in this study were charged with the task of predicting children's expected academic success given certain information about the children. Teachers were found to hold differential expectations for children based upon the child's sex, attractiveness, family background, and ability. The findings of this study provide corroborating support for results from a longitudinal naturalistic-observation study (Rist, 1970) which found that teachers developed expectations toward their pupils through a series of subjective evaluations of attributes and characteristics of their students. In the same study it was observed that teachers possessed a roughly constructed image of the "ideal type" of student. This image is apparently contrasted and compared with the characteristic of the student under consideration in evaluating the expectancy of success for that child. Furthermore, these characteristics appeared to be primarily a function of the student's social class. Classroom research summarized by Brophy and Good (1974) also confirms the assumption that teachers prefer cooperative, attentive, mature, compliant, achieving students, characteristics associated with middle-class membership. This investigation provides additional support for the assumption that the formation of teachers' expectations for children is influenced by social class information. Such a finding might imply that teachers view family background information in one of several ways. Perhaps teachers see social class characteristics as predictive of the likelihood of the child's development of "need for achievement" which would serve as a self-motivating force leading to academic success. Another alternative might be that teachers see social class information as being predictive of the motivating forces that would direct the child through family encouragement and support. Yet a third possibility might be that children from lower-class home backgrounds might not behave in the kind of ways that would make themselves endeared and encouraged by their teachers. Thus, the respondents in this investigation might be reflecting certain social realities of schooling in that teachers, who are by and large

middle-class in their values, might not enjoy teaching children from lower-class social strata.

An examination of Table 1 revealed that the estimated experimental variance attributed to the social class climate of the child's home (Folder Statement on the Home) was greater than for any other factor in each of the five dependent measures. In fact, the estimated experimental variance ( $w^2$ ) attributed to this social class type variable is greater for this factor than any other on all five dependent measures of teacher's predictions or impressions. These findings support Goodwin and Sanders' (1969) evidence that teachers felt that socioeconomic status was the most important variable predictive of classroom success. These results suggest that statements made by a child's former teacher may have strong influential effects on the next teacher's expectations and perhaps interaction with that child, particularly if such a statement consists of information about the child's home and social class background.

Further confirmation of Clifford and Walster's (1973) work was also found in this study. On the four dependent measures of predicted degree of creativity, level of intelligence, level of attainable training, and educational grouping, teachers rated the physically attractive children significantly and consistently higher than the low attractive children. These results provide further evidence of a physical attractiveness influence and suggest that teachers hold different expectations for physically attractive children which may influence their interactions with these children. This statement appears all the more relevant when one considers prior research which has demonstrated that physical attractiveness of the child has influential effects upon teacher-student interactions (Dion, 1972, 1974; Adams & Cohen, 1974). Furthermore, Good (1972), in an investigation of teacher attitudes, found a small but positive correlation between physical attractiveness of the student and holding the perception by teachers as being the "best known" students. The developmental consequence for special attention and treatment by socialization agents due to degree of physical attractiveness has not received much attention in the research literature. However, several recent studies suggest that differential personality characteristics might develop as the result of varying socialization experiences, with attractive individuals developing prosocial characteristics (Lerner & Karabenick, 1974; Adams, 1975) while unattractive individuals develop antisocial dispositions (Krebs & Adinolfi, 1975; Cavior & Howard, 1973).

Another important consideration concerning the physical attractiveness variable should be noted. Brophy and Good (1974) have proposed that individual differences between teachers may result in certain teachers reacting in a more favorable manner toward certain characteristics of students in their classroom. One specific comparison these researchers propose as being meaningful is that of apprentice or student teacher and master teacher. Furthermore, it could be contended that beginning teachers might be more influenced than master teachers by characteristics of the child since they have not had the experience necessary to sort out reliable versus unreliable characteristics predictive of classroom success. However, the present study found that experienced teachers (with an average of 5 years of teaching experience) were strongly affected in their judgment of children's ability by a physical characteristic of beauty or lack thereof. This



further suggests that physical attractiveness is an additional characteristic of the so called "ideal student."

Although cumulative folder information has obvious merits, education specialists might benefit in behalf of the child from examining the effects of such information on the formation of expectations and attitudes of teachers toward children. Ideally, the next step would be to assess the correlation between varying degrees or types of information and actual teacher-student interactions. The present data collection process was not designed to assess this relationship and it would be unrealistic to assume that teacher expectancy is directly correlated with teacher behavior.

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The significant ACDE interaction has not been discussed due to the unintelligible relation between variables.

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## Integrative Complexity: Structure and Correlates

*A battery of complexity measures and proposed correlates of complexity was administered to a sample of 100 grade eleven students. Factor analysis of the data revealed 5 factors which were interpreted as factors of intradimensional discrimination, indiscriminately pro-religious response, religious rejection, external dependence and integrative complexity. Although this investigation lent some support to the model of integrative complexity as proposed by Schroder, Driver and Streufert (1967), the findings were perhaps better illustrative of the present lack of well defined measures in this area. (Dr. Stewin is Associate Professor in the Department of Educational Psychology, The University of Alberta.)*

During the past decade numerous measures have been developed to assess the individual's level of complexity within the domain of interpersonal perception. Each measure has tended to reflect the approach of a particular researcher to the study of conceptual systems. Since their 1961 publication, Harvey and Hunt appear to have concentrated on training agents (environmental conditions) and behaviors characteristic of each conceptual system level (Harvey, 1967; Harvey, Prather, White & Hoffmeister, 1968; Hunt, 1966; Hunt & Joyce, 1967), whereas Schroder appears to have emphasized information processing in his approach to conceptual systems functioning (Schroder, Driver & Streufert, 1967). These differences have been reflected in instrumentation. Schroder and Streufert (1962) and Harvey (1964, 1965) have utilized semi-projective tests with satisfactory results, however, objective measures have more recently been constructed by Tuckman (1966) and Harvey (1967).

Varying perspectives concerning conceptual systems theory have resulted in the development of multiple classificatory schema as well. Schroder, Driver and Streufert (1967) state that degree of "integrative complexity" is dependent on both the informational dimensions (content) and the integrating rules (structure) which are operational. Although the number of dimensions is not necessarily related to the integrative



complexity of the individual, the probability of more complex combinatorial rules increases with a greater number of available dimensions. Dimensionality is therefore a secondary property of integrative complexity. Schroder et al. (1967) label combinatorial capacity as the "integration index" which increases as one proceeds along the concrete-abstract continuum and have described four levels of integrative structure (low, moderately-low, moderately-high, high).

In theory, level of conceptual system functioning (Harvey, 1967; Harvey, Hunt & Schroder, 1961; Harvey & Ware, 1967) and level of integrative complexity (Schroder, Driver & Streufert, 1967) appear synonymous. However, differences in approach to the classification of individuals by each schema have resulted in differing bases of categorization. Most studies attempting to define a common factor for complexity among various measures have resulted in negative findings (Gardner and Schoen, 1962; Scott, 1962, 1963; Vannoy, 1965). More recently this disparity has been examined by Stewin and Anderson (1974) who concluded that objective measures of complexity based on the framework proposed by Schroder et al. (1967) and on the approach of Harvey (1967) exhibited little or no correlation.

Subsequently, the present study was designed to analyze factorially various theoretically derived measures of conceptual systems functioning and several proposed measures and correlations.

### *Method*

The following battery was administered to a randomly selected sample of 50 male and 50 female grade eleven students ( $\bar{CA} = 17.1$ ):

#### A. Complexity Measures

- Interpersonal Topical Inventory
- Paragraph Completion Test
- This I Believe Test
- Groups of Nations Test

#### B. Proposed Complexity Measures

- Inference Test
- Gestalt Transformation Test
- Associations IV Test

#### C. Correlates of Complexity Measures

- Embedded Figures Test (Form V)
- Religious Orientation Scale
- Internal-External Scale

Each instrument and scoring procedure will be briefly described.

#### A. Complexity Measures

*The Interpersonal Topical Inventory.* The Interpersonal Topical Inventory (ITI), devised by Tuckman (1966), consists of 36 forced choice situations. Each response is designated as representative of a particular conceptual systems level. Choice of each response alternate therefore permits the assignation of a complexity level score for that item. Each subject obtains four raw scores, designating the number of choices made pertaining to each system. Intrasystem choices are converted to decile points derived by Tuckman (1966) and conceptual system membership is assigned on the basis

of the maximum decile rank. Subjects obtaining equivalent ranks in multiple systems are unclassifiable.

*The Paragraph Completion Test.* The Paragraph Completion Test (PCT) consists of a series of sentence stems eliciting projective responses from subjects. Six stems were utilized and scored by the criterion outlined in Schroder et al. (1967, pp. 189-198). Schroder et al. (1967, p. 190) note that stems producing the highest inter-rater reliability are those implying (a) the presence of alternatives, uncertainty or absence of structure, (b) the imposition of external standards, and (c) interpersonal conflict. An inter-rater reliability of .83 was obtained in the present investigation.

*The This I Believe Test.* The This I Believe Test (TIB), developed by Harvey (1964, 1965) is a projective complexity measure similar in form to the PCT. Stems are of the form "This I believe about. . . ." A four-point conceptual systems classification was employed, as described by Harvey (1966) who notes that global assignation of the individual's mode of conceptual functioning produces greater validity and higher reliability than does item analysis (p. 47). This scoring technique has produced inter-rater reliabilities of .90 and above for various samples (Harvey, *ibid*, p. 46).

*The Groups of Nations Test.* The Groups of Nations Test (Scott, 1962) consists of a list of 20 nations which the subject is requested to group on as many bases as he can devise. Groups need be neither complementary nor exclusive. A revised scoring system developed by Gardiner (1968, p. 46) presents a considerable divergence from that proposed by Scott (1962), however, the original procedure tends to produce a skewed distribution (Gardiner, 1968, p. 46). In terms of the revised protocol, the subject was assigned both a quantity and a quality score on the basis of simple number of groupings formed and of the complexity of concepts underlying these groupings. (Quality scores ranged from 1 to 3.) Each subject's total score was the simple sum of his quantity and quality scores. The quality score, it should be noted, was limited in range by the decision to assign one quality score to all groups formed on a particular categorical basis, rather than to assign a quality score for each grouping separately.

#### B. Proposed Complexity Measures

The three proposed complexity measures are sub-tests of the Kit of Reference Tests for Cognitive Factors (French, Ekstrom & Price, 1963). The Inference Test is there described as a measure of syllogistic reasoning, the Gestalt Transformation Test as a measure of semantic redefinition, and the Associations IV Test as a measure of associational fluency.

*The Inference Test.* The Inference Test employed was an adaptation of one by Berger, Guilford, and Christensen (1957). Subjects were requested to choose between five given conclusions on the basis of the information available in a preceding statement. Correct choices were summed to yield the individual's score. The Inference Test was chosen as a possible measure of complexity as it demands both selection and organization of relevant information to attain the correct solution. As such, it was considered an index of complexity.

*The Gestalt Transformation Test.* The Gestalt Transformation Test (Guilford, Wilson & Christensen, 1952) has been used as a measure of creativity (Garwood, 1964; Tuckman, 1966). The subject was required to



indicate which of five listed objects would best enable him to successfully complete a specified activity. The subject's score was the sum of his correct choices.

The rationale for the inclusion of this test as a possible measure of complexity was that the cognitively complex person theoretically possesses the ability to spontaneously generate new schemata in an ambiguous situation (Schroder et al., 1967, p. 25) while the conceptually simple person remains bound by the stimulus configuration (*ibid*, p. 23).

*The Associations IV Test.* The Associations IV Test (Guilford et al., 1952) required the subject to supply a linking word differently related to two given words. A score of 1 was assigned to each correct association; scores were summed to yield the total score. The Associations IV Test was proposed as a complexity measure “. . . to the extent that a complex person should be less tied to a single, fixed association than would a simple person” (Sieber & Lanzetta, 1966, p. 569).

### *C. Correlates of Complexity Measures*

*The Embedded Figures Test, Form V.* The Embedded Figures Test, Form V (EFT) is a group measure of field dependence, emphasizing memory of forms (Jackson, Messick & Myers, 1964, p. 188). Form V of the EFT consists of 16 pairs of simple and complex figures presented in booklet form. Complex figures, within which the simple figure is to be identified, are presented on the reverse side of the page. The subject was required to identify, by tracing, as many of the embedded figures as possible within ten minutes. Number of correct identifications completed constituted the individual's score.

*The Religious Orientation Scale.* The Religious Orientation Scale (ROS), devised by Allport and Ross (1967) consists of multiple choice items. Each item has four alternates, choice of which indicates the subject's degree of agreement or disagreement with the item. Choices were assigned values of 1, 2, 4 and 5; unanswered items were assigned a score of 3. Intrinsic responses to items were low in value; extrinsic responses were high. Separate summed scores for the intrinsic and extrinsic subscales were obtained. Medians for both intrinsic and extrinsic scales were obtained and subjects were classified on this basis. Subjects scoring above both medians were termed extrinsic; subjects scoring below both medians were termed intrinsic. A difference (I-E) score was also obtained. Individuals who obtained a difference score of -12 or less (12 points less on the intrinsic than on the extrinsic subscale) were designated as indiscriminately pro-religious (IPR). A score of this magnitude indicates that the individual recorded at least 50 percent more intrinsic choices than would be predicted from his extrinsic choices (Allport & Ross, 1967, p. 438). An indication of frequency of church attendance was also obtained from item 12 of the ROS.

*The Internal-External Scale.* The Internal-External Scale (I-E) consists of 25 forced choice items, requiring the subject to choose between externally-worded and internally-worded parallel statements. This version of the I-E Scale was given by Rotter (1966, pp. 11-12) and incorporated three filler items to obscure the test intent. The total number of externally-worded alternates chosen constituted the individual's score.



TABLE 1  
INTERCORRELATIONS BETWEEN COMPLEXITY MEASURES AND CORRELATES

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Gestalt Transformation	1.000												
2. Associations IV	227*	1.000											
3. Inference Test	336	401	1.000										
4. Embedded Figures Test V	174	191	250	1.000									
5. Interpersonal Topical Inventory	012	045	135	-182	1.000								
6. Paragraph Completion Test	038	187	131	-086	167	1.000							
7. This I Believe	142	277	308	114	112	408	1.000						
8. Groups of Nations	141	194	244	143	-055	128	206	1.000					
9. Internal-External Scale	-256	154	062	-191	-022	075	-023	-089	1.000				
10. ROS-Intrinsic Subscale	-022	045	147	-156	-107	-026	015	-081	290	1.000			
11. ROS-Extrinsic Subscale	-085	026	-021	-008	-037	-080	-110	054	094	-207	1.000		
12. ROS Church Attendance	-034	052	132	-208	-010	042	066	-112	070	461	-033	1.000	
13. ROS Indiscriminately Pro-Religious	-024	008	171	037	148	-173	-023	-120	-116	395	474	-057	1.000

\* All decimal points omitted except in diagonal.

Analysis and Results

Table 1 contains the intercorrelations among the 13 variables. The data were subjected to a principal axis factor analysis (Harman, 1967). Five eigenvalues greater than one were obtained.

Five factors were then extracted and rotated to simple structure by the varimax method (Harman, 1967). These factors are presented in Table 2.

TABLE 2  
ROTATED FACTOR LOADINGS (VARIMAX)

Variables	Factor Loadings					Communality
	I	II	II	IV	V	
1. Gestalt Transformation	401*	−037	143	−641	−075	589
2. Association	758	065	091	088	−041	596
3. Inference Test	697	185	−066	−287	081	613
4. Embedded Figures Test V	375	004	−283	−295	−480	539
5. Interpersonal Topical Inventory	−001	148	−003	−134	756	612
6. Paragraph Completion Test	383	−294	−105	220	581	630
7. This I Believe	598	−154	026	−039	385	532
8. Groups of Nations	489	−160	−295	037	−127	369
9. Internal-External Scale	147	044	236	799	−042	719
10. ROS-Intrinsic Subscale	029	−350	761	212	−164	773
11. ROS-Extrinsic Subscale	026	765	−082	263	−107	673
12. ROS-Church Attendance	−059	007	829	−017	104	702
13. ROS-Indiscriminately Pro-Religious	−009	871	−097	−152	121	805
Sum of Squares	2.131	1.665	1.550	1.432	1.382	8.162
% of Common Variance	26.12	20.40	18.99	17.55	16.94	100.00
% of Total Variance	16.39	12.81	11.92	11.02	10.64	62.78

\* All decimal points have been omitted.

Interpretation of the Factors.

Loadings exceeding  $\pm .300$  on the rotated factors have been interpreted.

Factor 1

The following tests defined factor 1, which accounted for 26.12 percent of the common variance and 16.39 percent of the total variance.

<i>Test</i>	<i>Loading</i>
Associations IV	.758
Inference	.697
TIB	.598
Groups of Nations	.489
Gestalt Transformation	.401
PCT	.383
EFT	.375

High positive loadings on this factor by three complexity measures and four correlates of complexity suggest that it may be interpreted as a complexity factor. Desirable subject responses on these instruments appear to incorporate both aspects of complex cognitive functioning, dimensionality and integrative ability.

Associations IV, which contributes the highest loading to this factor, is described by French et al. (1963, p. 12) as a measure of associational fluency or the ability to produce words within a restricted area of meaning, as well as the ability to be aware of similarities between these words. Two conceptual abilities appear relevant to success on this task, differentiation (number of associations) and discrimination (associations within the dimension). Performance on the Inference, Gestalt Transformation, and EFT would also appear to rely heavily on discrimination along a given dimension. Groups of Nations, as scored in this study, appears to be primarily a measure of differentiation, a necessary pre-condition of discrimination.

The relevance of this factor to the nature of integrative complexity is noted by Schroder, Driver, and Streufert (1967, pp. 165-184). They state that the abstractness of a structure is dependent on three variables: number of dimensions (differentiation), number of ways of discriminating along a dimension (discrimination), and a complexity of integrative schemata (integration). This factor might best be interpreted as one of intradimensional discrimination.

*Factor 2*

Factor 2 accounted for 20.40 percent of the common variance and 12.81 percent of the total variance. The following loadings were obtained:

<i>Test</i>	<i>Loading</i>
IPR	.871
Extrinsic ROS	.765
Intrinsic ROS	-.350

High positive loadings on IPR and extrinsic ROS and moderate negative loadings on intrinsic ROS describe this factor. The PCT contributed a loading of -.294, suggesting a tendency toward lower integrative complexity. This factor was interpreted as one of indiscriminately pro-religious thinking. IPR subjects are defined by Allport and Ross (1967, p. 438) as giving approximately 50 percent more intrinsic responses than would be expected from their extrinsic choices. ROS sub-scale loadings indicate this factor receives substantially higher extrinsic ROS than intrinsic ROS loadings, which suggests a primarily extrinsic orientation or religious acquiescence.



In this instance, a significant intrinsic ROS loading was interpreted as indicative of acquiescence rather than true intrinsic religious belief.

This factor would appear to be the religious correlate of low integrative complexity (Schroder et al., 1967) in that lower levels of integrative complexity are characterized by little differentiation, little discrimination, and little integration. The strong tendency toward IPR acquiescence exhibited on factor 2 suggests it may be interpreted as a factor of low religious complexity or of indiscriminately pro-religious response.

*Factor 3*

Factor 3 was defined by the following loadings, and accounted for 18.99 percent of the common variance and 11.92 percent of the total variance:

<i>Test</i>	<i>Loading</i>
ROS Church Attendance	.829
Intrinsic ROS	.761

This factor was described by rejection of intrinsic ROS (true religious beliefs) and low church attendance. Factor 3 is also identified with low dimensionality (Groups of Nations -.295), field dependence (EFT -.283), and externality (I-E Scale .236). This factor closely resembles that which Gardiner (1968, p. 65) labelled “religious rejection.” However, rejection of religious beliefs is not coupled with rejection of extrinsic or pragmatically oriented religious items, which complements the observed tendency toward field dependence and externality.

Harvey (1966, p. 49) notes that both Systems 2 and 4 tend to reject religious beliefs and participation, on differing bases. The factor of religious rejection under consideration appears consistently related to lower conceptual systems functioning and its correlates, rather than higher functioning. The undifferentiated cognitive style associated with field dependence and externality of orientation support this suggestion.

*Factor 4*

Factor 4, which accounted for 17.55 percent of the common variance and 11.02 percent of the total variance, was defined by the following loadings:

<i>Test</i>	<i>Loading</i>
I-E Scale	.799
Gestalt Transformation	-.641

Factor 4 is primarily described by high external dependence and low creativity in the form of low Gestalt Transformation scores. However, French et al. (1963, p. 35) suggest that success on this task involves flexibility of set as it pertains to the common function of a specified object. Low scores on Gestalt Transformation, in this context, suggest functional fixedness.

Factor 4 is also identified with field dependence (EFT-.295), low deductive reasoning ability (Inference Test -.287), and extrinsic religious orientation (Extrinsic ROS .263; Intrinsic ROS .212).

Factor 4 appears to be primarily a factor of external dependence. Within this battery, no consistent relationship between external dependence and conceptual systems functioning could be observed. Harvey (1966, p. 53) reports that, on a measure of need affiliation "System 3 individuals were the highest, followed by Systems 1, 4 and 2, in that order..." Consequently, lack of unitary complexity measure trend on a factor of external dependence gains support. System 1 functioning (Harvey, 1966, p. 44) is characterized by dependence on authorities, whereas system 3 functioning (*ibid*, p. 45) tends to be associated with pragmatic dependence on, or manipulation of, others. Differing modes of dependency observed in individuals of distinct conceptual systems levels might be expected to produce the factor discribed (Harvey, Hunt, & Schroder, 1961, p. 188).

Factor 5

Factor 5, described below, accounted for 16.94 percent of the common variance and 10.64 percent of the total variance.

Test	Loading
ITI	.756
PCT	.581
EFT	-.480
TIB	.385

Factor 5 is defined by moderate to high positive loadings on three complexity measures and a moderate negative loading on field independence. Comparatively higher loadings on the ITI and PCT than on the TIB suggest that this factor may be more representative of integrative complexity than of differentiation. Moderate negative loadings on the EFT and a negative loading on Groups of Nations (-.127) tend to support the indication that low dimensionality is an attribute of this factor.

Schroder et al. (1967, p. 115) have suggested that a low order relationship between the TIB and PCT is to be expected as the TIB is scored largely on a content basis whereas the PCT is scored on a structural basis. Schroder et al. (1967, p. 114) also suggest that, in a visual recognition situation, more abstract individuals tend to require more time to complete a task and to express more uncertainty regarding their solution than do more concrete individuals.

In an ambiguous situation such as the EFT offers, the more complex individual produces many more integrations of the information given and more carefully examines each possible solution. The less complex individual, conversely, tends to structure the stimulus field and, in so doing, reduce the ambiguity presented. Poorer levels of performance on the EFT associated with greater complexity may be reasonably considered as an indice, not of field dependence per se, but of a tendency to admit greater ambiguity in a decision making situation.

Discussion

Factor analysis of the battery identified five factors which appeared psychologically meaningful. These have been interpreted as factors of intradimensional discrimination, indiscriminately pro-religious response, religious rejection, external dependence, and integrative complexity.

Results of this analysis lend some support to Schroder's model of integrative complexity consisting of three components (discrimination, differentiation, integration). However, it is suggested that further research into conceptual systems functioning must closely examine the available instruments. Wiggins (1968), in his review of research in the area, has strongly suggested that the factor analytic technique, rather than the "one-shot" investigation, appears the most advantageous approach in applying presently available instruments to determining the nature of the complexity variable. As noted earlier, little commonality has been observed when various measures of complexity have been jointly administered, implying that this construct may be domain specific rather than being a global trait. An efficacious approach to the problem of classification might encompass the administration of a battery of complexity and conceptual systems measures and the derivation of a multidimensional scoring system to effect systems classification.

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## Locus of Control and its Relationship to Moral Development

*This research attempted to explore the relationships between Rotter's Locus of Control Scale and Kohlberg's Stages of Moral Development. Forty grade twelve subjects were randomly selected and given Rotter's I-E Scale and nine of Kohlberg's protocols. A one-way analysis of variance indicated no statistically significant relationships between locus of control and moral development. This raised questions as to the theoretical basis of both scales. In addition, previous research had indicated that more internal members of society were needed. In the light of previous evidence and the present study, the authors contend that what society needs is not more alert, skillful, achievement-oriented internals, but more people capable of higher moral judgment. (Dr. Boersma is a Professor of Educational Psychology, and Dr. Janzen is an Associate Professor of Educational Psychology, at the University of Alberta.)*

In 1966, Julian B. Rotter wrote:

The effects of reinforcement of preceding behavior depend in part on whether the person perceives the reward as contingent on his own behavior or independent of it. Acquisition and performance differ in situations perceived as determined by skill versus chance. Persons may also differ in generalized expectancies for internal versus external control of reinforcement (p. 409).

Rotter's internal-external locus of control construct has been investigated in two primary ways. One procedure sets up an experimental situation in which the subject is reinforced for performing a task. The reinforcement here is designed to appear to the subject as either contingent upon his actions (internal locus of control) or as not contingent upon his actions (external locus of control).

An example of this procedure is reported by Phares (1971). Phares used color matching as an ambiguous task and instructed half of the subjects that the task was based on luck and the other half that the task was based

on skill. After each task the subjects placed bets on how many colored disks they had correctly matched. A fixed order of partial reinforcement was used for both groups; results were as hypothesized. Subjects who, after reinforcement, were told that performance was due to their skill made significantly higher bets than subjects who were told that the task was due to chance. Conversely, subjects who failed to obtain reinforcement and who were told that their performance was due to skill made significantly lower bets than subjects who were told that the task was due to chance. From this study and others, Rotter (1966) concluded that people perform differently, according to whether they perceive reinforcement as being contingent on their skill or as being dependent on chance.

The second way in which Rotter's construct has been studied is to measure a person's internal-external orientation using a 29-item forced choice scale developed by Rotter (1966). Rotter's Internality-Externality (I-E) Scale is based on the premise that people have relatively stable tendencies to view their satisfactions in life as being either under their own control or under the control of some outside force.

In experiments using Rotter's scale, subjects are typically divided in internal and external groups. The median of the sample distribution or the top and bottom thirds are usually taken as the division point for the two groups. Thus, what is internal in one sample may not necessarily be internal in another sample. Such groups are then often compared on some other variable(s) to see if there are any significant relationships between sets of variables.

Results to date have been mixed. Early studies tend to emphasize the positive nature of internality and the negative nature of externality (Janzen & Beeken, 1973). In line with these findings, Rotter (1966) states that internals, as compared to externals, are more alert to their environment for uses which will provide information for the future, take steps to improve their environmental conditions, place greater value on skill and achievement, and are resistant to subtle manipulation. Internals are also described (Rotter, 1966, 1971) as surer of themselves, confident that they can control themselves and their destinies, better educated, more readily able to quit smoking, and richer. On the other hand, externals are described as feeling they are controlled by powerful others, docile and suspicious.

Not all the research, however, has borne out suppositions concerning the positive nature of internality. For example, Battle and Rotter (1963) found that among lower class black children, the more intelligent tended to be more external. DuCette and Wolk (1972) repeated Battle and Rotter's study and reported similar results. Efram (1964) found that among high school students the tendency to repress failures was significantly related to internality. In another study, Janzen, Beeken and Hritzuk (1973) reported that internal teachers were less likely to endorse student autonomy than external teachers. In summarizing the literature to date, Janzen and Beeken (1973) concluded that

it certainly is possible to contend that an external locus of control has positive aspects. These would include a more liberating attitude to interpersonal (and other) relationships, greater tolerance of chaotic and unpredictable situations, a more realistic appraisal of the nature of what influences us, and a less overt desire for power. (p. 301)



Thus, there appear to be two opposing evaluative interpretations regarding merits of being internal; that of Rotter who feels the internality is a positive facet which should be strived for, and that of Janzen and Beeken who feel that externality may also have positive qualities. In light of this controversy it was felt that further study into the nature of Rotter's internality-externality construct was needed, especially in terms of areas hitherto not studied. One of these areas is moral development.

Several studies have suggested possible positive relationship between internality and moral development. For example, Penk (1969) found that children employing verbally mature abstractions tended to be more internal. In line with this, Kohlberg (1971a, 1971b, 1971c) has surmised that ability to make verbally mature abstractions facilitates the obtaining of higher levels of moral development. In another study, Adams-Webber (1969) found that internals had significantly more internalized moral sanctions, which might be interpreted to mean that internals have a more highly developed sense of "right" and "wrong" than do externals. Adams-Webber went on to further suggest that individuals should strive for internalized moral sanctions. Expanding this line of reasoning, if one thinks of great religious leaders or even people that they consider highly moral, it would probably be reasonable to suggest that such people are more resistant to manipulation, and more in control of themselves and their environment, than are people considered less moral. On the other hand, it would be hard to imagine persons functioning at higher levels of morality who were docile, suspicious, and feeling controlled by powerful others. Accordingly, one would expect to find highly moral individuals operating at a high level of internality on Rotter's scale.

The present investigation will address the above supposition by investigating the relationship between Rotter's (1966) Internality-Externality Scale and Kohlberg's (1971) Morality Scale. Specifically, it will address the question of whether Rotter's internal individual will be functioning at a higher level of Kohlberg's stages of morality than the external individual. This question is particularly relevant in light of Rotter's (1966, 1971) and Stephens and Delys' (1971) claim that society needs more internal minded members.

Kohlberg's scale was chosen because its description of individuals functioning at the upper levels of his moral stages seems to agree with the description by Rotter and other researchers (Penk, 1969; Julian, Lichtman & Ryckman, 1968; Adams-Webber, 1969) of internally controlled individuals. For example, Rotter's description of the internal locus-of-control person correlates with Kohlberg's assertion (1970) that there is increasing use of verbally mature abstractions, internalized decisions, higher levels of abstract reasoning and decision making, on the basis of self-chosen ethical principles at high stages of moral development. Conversely, individuals functioning at Kohlberg's lower stages of moral development are described as being punishment and obedience oriented, unquestioning towards power (external sources), and maintaining the expectations of others. Rotter's externally controlled person is also seen as being manipulated by the expectations of others and making judgments based on the basis of external contingencies. Thus, it seems logical to assume that there will be a positive

relationship between the two scales with internal individuals obtaining higher morality scores, and external individuals lower morality scores.

*Method*

Two samples of twenty high school students were tested. The initial sample (Sample A), consisted of 12 girls and 8 boys whose mean age was 16.8 years. All were attending a grade 11 psychology class. A second sample was used to check the results on Sample A. This second group (Sample B) consisted of 11 girls and 9 boys whose mean age was 17.2 years. These students were attending a grade 12 mathematics class. Both samples came from middle socioeconomic regions of the city of Edmonton. Sample A came from the separate schools, Sample B came from the public schools. All subjects were given the Rotter I-E Scale (1966) and the Kohlberg Moral Development Scale (1971a) with nine of Kohlberg's moral dilemmas being evaluated. Kohlberg protocols were marked by two experienced judges. Extent of inter-rater agreement was 85%, thus indicating fairly high agreement between judges' ratings. The data were analyzed by means of a one-way analysis of variance designs with I-E scores being the dependent variable, and Kohlberg stages the independent variable.

In both samples, two scores were obtained from each student. One score was a Rotter I-E number which could vary between 1 and 29. The higher this score the more internal the individual or conversely, the lower this score the more external the individual. The other was the Kohlberg stage score. These stages vary theoretically from 1 to 6. However, of the population studied, no individual obtained a stage 1 or 6 level of moral reasoning.

*Results*

This study had as its main postulate the supposition that those who score high on Rotter's I-E Scale are using a type of moral reasoning that would be found at conventional or post-conventional levels of moral development as measured by Kohlberg's scale.

*Sample A*

Table 1 shows the relationship between Rotter's I-E scores and Kohlberg's stages for this sample of 12 girls and 8 boys. The Rotter I-E scores are listed in the columns under their respective Kohlberg stages. For example, the number 5 under Kohlberg stage 2 represents an individual who scored 5 on the Rotter scale and who fell into the second stage of moral reasoning as measured by the Kohlberg scale. It is interesting to note here that 50% of the I-E scores fell at stage 3, and that cases of upper levels of moral development were infrequent. Also, there appears to be no obvious relationship between these two scales.

Table 2 presents the one-way analysis of variance on this data. A chi-square test for homogeneity of variance revealed that variability of scores between columns did not differ from chance. From Table 2 it can be seen that there was no statistically significant relationship in the first sample between an individual's score on Rotter's I-E scale and his stage of moral development on Kohlberg's scale. In an attempt to see if this finding could be replicated, Sample B was run.

TABLE 1  
RELATIONSHIP BETWEEN ROTTER'S INTERNAL SCORES AND KOHLBERG'S STAGES FOR SAMPLE A

	Kohlberg Stage					
	1	2	3	4	5	6
Rotter "Internal" Score (Listed under Kohlberg Stages)		5	6	10	5	
		11	8	11	15	
		11	9	15		
		13	9			
		14	11			
			15			
			15			
			16			
			16			
			16			
			16			

TABLE 2  
ONE-WAY ANALYSIS OF VARIANCE FOR ROTTER INTERNAL SCORES BETWEEN DIFFERENT KOHLBERG STAGES FOR SAMPLE A

Source of Variation	SS	MS	DF	F	p
Group	11.25	3.75	3	0.24	0.867
Error	249.7	15.61	16		
Total	260.95	19.36	19		

p not significant at .05 level.

Sample B

The relationship between Rotter's I-E scores and Kohlberg's stages for Sample B, 11 girls and 9 boys, is presented in Table 3. Again, 50% of the subjects fell within the stage 3 classification. There is no apparent relationship between these variables. A chi-square test of variances between distributions revealed that the homogeneity of variance assumption could be met. Consequently, a one-way analysis of variance was also run on this sample. Table 4 presents these data, from which it can be seen that there was no statistically significant effect. Thus, it would appear that there is no significant relationship in the second sample between an individual's score on Rotter's I-E scale and his score on Kohlberg's scale. Concomitantly, these findings are in agreement with those obtained in Sample A.

Discussion

In spite of having samples from different grade levels and from different schools, the results were the same: there were no significant relationships



TABLE 3  
RELATIONSHIP BETWEEN ROTTER'S INTERNAL SCORES AND KOHLBERG'S STAGES FOR SAMPLE B

	Kohlberg Stage					
	1	2	3	4	5	6
Rotter "Internal" Score (Listed under Kohlberg Stages)		9	10	14		
		13	18	10		
		12	8	12		
		14	19			
		10	11			
		6	15			
		15	8			
			10			
			15			
			17			

TABLE 4  
ONE-WAY ANALYSIS OF VARIANCE FOR ROTTER INTERNAL SCORES BETWEEN DIFFERENT KOHLBERG STAGES FOR SAMPLE B

Source of Variation	SS	MS	DF	F	p
Group	13.87	6.94	2	0.53	0.60
Error	224.3	13.20	17		
Total	238.17	20.14	19		

p not significant at .05 level

between Rotter's Locus of Control Scale and Kohlberg's stages of moral development.

What implications, then, do these results have for the claims made about Rotter's scale? If the I-E scale measures verbal abstraction, internalized moral sanctions, feelings of control, resistance to manipulation, tolerance, and assessment of forces that influence us, why then is there no relationship with the development of moral judgment as measured by Kohlberg's scale? Correspondingly, if children employing verbally mature abstractions tend to be internal (Penk, 1969) and if, as one proceeds up Kohlberg's scale, the principles used in making judgments become more abstract and ethical, why then is there no relationship between the Rotter and Kohlberg scales? One possible explanation might be that even though Rotter's internal is employing more verbal abstractions, the abstractions are not more ethical. Perhaps the abstractions are merely in the form of higher level rationalizations. If this is the case, internals would not necessarily be concentrated at Kohlberg's higher levels.

The fact that internals had more internalized moral sanctions in the

Adams-Webber study (1969), but were not using significantly higher levels of moral judgment in the present study, might be explained by postulating that individuals using higher levels of moral judgment have no great need for internalized moral sanction, or at least by saying that higher level moral judgment does not require more internalized moral sanctions. It might also be that dogmatism, resistance to manipulation, and feelings of being in control are not relevant to moral judgment as measured by Kohlberg's scale. This in turn would raise the question as to whether a person using stage five or six moral judgment as well as a person using stage one moral judgment, as measured by Kohlberg's scale, could be dogmatic, resistant to manipulation, and have feelings of being in control. Similarly, there might be the possibility that individuals at stage one or stage six in moral judgment could be both docile and suspicious.

Perhaps moral judgment and moral behaviour are not related. It may be that Kohlberg's scale measures only moral judgment whereas Rotter's scale measures personality factors that are highly correlated with behaviour. These questions have yet to be answered.

Consider Janzen and Beeken's (1973) external teacher who respects individual rights and allows his students more autonomy than the internal teacher. How can it be explained that he is not necessarily operating at a higher level of moral judgment, particularly when Kohlberg's higher stages are based on an increased respect for human rights? Perhaps this teacher might be operating at a higher level of moral judgment; however, the counter argument, that the teacher is allowing the students' autonomy through lack of control, is equally possible.

The above discussion has been based on the premise that Kohlberg's and Rotter's scales are valid (i.e., that they are measuring what they purport to measure). It is possible that one or both scales are not valid. Several possible limitations of the Kohlberg scale have already been discussed. In terms of Rotter's scale one could question whether it is measuring a single dimension. If internality-externality is not a stable dimension found on a single continuum, it would be very hard to compare individuals with regard to internality-externality at different points on the scale. As Janzen and Beeken (1973) have pointed out, there is a great danger of applying preconceptions to the design and interpretation of locus of control experiments. In other words, there is a danger of endowing the measure with the intended measured meanings of the concept. The theoretical basis for Rotter's scale still needs investigation.

As such, it may be premature for Rotter (1971) and Stephens and Delys (1971), to claim that society needs more internal individuals. Even if the internal individual has the positive qualities that Rotter (1971) claims, the present writers would argue that what society needs may not be more alert, skillful, achievement oriented, and environmental controlling internals (Rotter, 1966), but more people capable of higher moral judgment. Perhaps, as Janzen and Beeken (1973) note, Rotter's scale might be more useful in the field of learning than in personality. Whether internal or external, as determined by Rotter's scale, people might make highly abstract moral decisions based on previous reinforcement contingencies. Accordingly, these contingencies might give individuals stable patterns of responding to situations as posited by Kohlberg. If this is the case such response patterns

could probably not be classified as more internal or on a higher or lower level of moral abstraction.

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## Teaching About Marital Roles—Using Research Findings To Design Teaching Strategies

*Previous research indicated that adolescent marital role expectation patterns influence later marital adjustment. Data from a study of the marital role expectations of 107 males and 107 females attending a large Alberta high school are reported. Findings indicated that both men and women were equalitarian in 6 out of 7 marital role subscales. The exceptions were the homemaking role for girls and the employment and support role for boys where scores fell in the traditional range. A problem solving teaching strategy is suggested for marriage education classes to implement generalizations obtained from the empirical research. (Dr. Kieren is the Chairperson of the Division of Family Studies and Professor Badir is Dean of the Faculty of Household Economics, The University of Alberta.)*

Marriage education in the schools in Alberta has been cautiously approached by school personnel. As a result, few courses have been developed specifically to assist young people in making one of life's more important choices—selecting a marriage partner.<sup>1</sup> The task for educators is therefore two-fold, gaining acceptance for marriage education as a viable part of the high school curriculum and selecting learning experiencing which allow students direct involvement in the discussion of issues most important to them. This article focuses on the latter task as it relates to teaching about marital roles. It reports the findings from a 1971 study of marital role expectations of high school students in a large Alberta city and outlines teaching strategies which utilize this data.

### *Marital Role Expectations and Marital Roles*

Traditional attitudes toward marriage and the concomitant roles of the partners in that system are being challenged (Bernard, 1970; Bardwick, 1971; Dalhstrom, 1967; Bird, 1970). While there has been increasing

discussion and criticism of the marriage institution (Mead, 1966; Otto, 1970), there is continuing evidence that the expectation of marrying is still quite strong in North America. For example, according to census data in the United States, 92 to 95% of the American population marry at some point in their life (Golenpaul, 1969).

In the family, the roles of husband and father and wife and mother stand out as distinct recurrent patterns of conduct. These roles have two components—performances and expectations. The complementary and reciprocal relationship of role performances and role expectations makes up the social structure of the family.

Through the process of socialization, a person learns the standards and ideals of his group so that roles become a part of his personality. Hill and Becker (1942), Cottrell (1933), and Burgess and Locke (1953) suggested sometime ago that a person's marital role expectations are formed in adolescence, not in the engagement or honeymoon period. These expectations may be realistic or unrealistic, but they remain untested until the person marries or forms an enduring relationship with a person of the opposite sex. Cottrell (1933) and Mangus (1957) have suggested that the incompatibility between role performances and role expectations of the spouses acts as an effective stimulus to early marital adjustment. This fact plus the disarming recognition that more and more young married couples are seeking solutions to their unmet marital expectations in the divorce court has led to an increased concern for marriage education programs as a means of preparing youth to cope with these discontinuities more effectively. Devising programs and effective methods depends on a research base of information about current marital role expectations. This belief stimulated the study reported here.

### *The Study*

While several older studies have examined the marital role expectations of American teenagers (Dunn, 1961; Gould, 1961; Moser, 1961), at the time this study was undertaken, Canadian data was not available.<sup>2</sup> In addition, the women's movement had provided a stimulus for a new look at marriage and marital roles, a fact which suggested it was a propitious time to assess young people's attitudes toward this subject. The study sought to answer the following questions: To what extent do Canadian adolescents' role expectations reflect a companionship-equalitarian or traditional concept of marital roles? Are there sex differences in these expectations? What relationship do selected personal and family variables have to particular marital role expectations? How do the expectations of Canadian adolescents in 1971 compare with those reported in earlier studies for American adolescents in 1959?

### *The Research Design*

#### *Sample*

Five large composite high schools (schools which offer both academic and vocational programs) were selected as the study settings. While school policy prevented drawing a random selection of schools or classes, the school population in all cases was representative of more than one area of the city. A sample of 107 males and 107 females was drawn from required

tenth- and eleventh-grade classes. This group represented all students in ten classes. Respondents ranged in age from fourteen to eighteen years of age with a mean age of 16.8 years for the total group. Eighty-eight percent of the sample was Canadian born. The majority of the students came from families in which there were two or more children in the family. Using Hollingshead's Index of Social Position (1957) to assess the father's occupation, fifty percent of the respondents lived in families categorized as white collar. Three-quarters of the student group were dating at the time of the study.

Instruments

The Dunn Marital Role Expectations Index (1960) was used to measure marital role expectations. This scale consisted of seventy-one items divided into seven sub-scales: (1) care of children; (2) personal characteristics; (3) social participation; (4) homemaking and employment; (5) education; (6) personal characteristics; and (7) authority. The remainder of the questionnaire consisted of a series of fixed answer questions to assess age, ordinal position, dating status, educational aspirations, present relationship with parents, marital aspirations of the respondent, and student assessment of the parent's occupation, marital happiness and authority pattern in marriage.

Results

A total marital role expectation score and seven sub-scale scores were calculated for males and females. Out of a possible 71 points indicating a highly equalitarian view of marital roles, the median score for males was 42.5 compared to 48 for females. The range of scores for males was 10 to 63, 19 to 67 for females. Using Dunn's scoring guide, Table 1 summarizes the distribution of male and female scores in the four categories established by Dunn (1960).

A one-tailed Mann-Whitney test of male and female scores indicated that the difference between male and female scores was statistically significant at  $< .05$  with females being more equalitarian ( $z = -3.42, p \leq .0003$ ).

TABLE 1  
FREQUENCY AND PERCENTAGE DISTRIBUTION OF MARITAL ROLE  
EXPECTATION SCORES FOR MALES AND FEMALES

	Males		Females	
	N	%	N	%
Equalitarian Scores 54-71	12	11.2	23	21.5
Moderately Equalitarian Scores 36-53	68	63.6	74	69.2
Moderately Traditional Scores 19-35	25	23.3	10	9.3
Traditional Scores 0-18	2	1.9	0	0.0
Total	107	100.0	107	100.0



### Subscale Analysis

Because earlier research related to marital role expectations had suggested that marital role expectations were multidimensional rather than unidimensional, the subscales were analyzed separately. Using a dichotomous split, scores above the median were considered equalitarian and those including and below the median, traditional. Male and female scores were analyzed separately. Table 2 summarizes the percentages of males and females scoring equalitarian on the seven subscales.

TABLE 2  
SUBSCALE PERCENTAGES OF MALES AND FEMALES WHOSE SCORES  
WERE CLASSIFIED EQUALITARIAN

	Males	Females
Authority	56	72*
Homemaking	48	38
Child Care	78	93*
Personal Characteristics	69	79*
Social Participation	51	59
Education	48	58
Employment and Support	28	51*

\* On these subscales, a two-tailed  $z$  test of proportions was significant at  $<.05$  (Walker & Lev, 1953, p. 77).

One may note that over half of both male and female scores fell into the equalitarian category on authority, child care, personal characteristics, social participation, and employment and support subscales. Over half of the female respondents' scores were also viewed as equalitarian on the education subscale. On all subscales except homemaking, the percentage of females scoring equalitarian was higher than that of males. Thus the hypothesis was supported that females' marital role expectations scores are more equalitarian (and therefore higher) than males' scores on these scales. Using a one-tailed  $z$  test of proportions, the hypothesis was supported at the .05 level of confidence for the authority ( $z=2.28$ ,  $p\leq .01$ ), care of children ( $z = 3.31$ ,  $p \leq .001$ ), employment and support ( $z = 3.1$ ,  $p\leq .001$ ) and personal characteristics subscales ( $z = 1.7$ ,  $p\leq .04$ ).

### Marital Role Expectations and Personal and Family Variables

Chi-square tests were conducted to assess the relationship between marital role expectation scores and selected personal variables. Hypotheses stating that age, dating status, and future expectation to marry were related to marital role expectation scores were tested. These variables were selected to test whether or not a developmental or experience factor might be associated with equalitarianism or traditionalism in marital roles. Each of the three personal variables were cross tabulated with marital role expectations scores for males and females separately. None of the tests run were significant at the .05 level for either males or females.

Because social learning theory suggests that modeling behaviour serves as one influence in the acquisition of various adult roles, several familial variables were tested with marital role expectation scores. Mother's working status and the respondent's assessment of authority patterns in the parents' marriage constituted the two family variables tested. It was believed that mother's employment would be associated with more equalitarian scores, as would an assessment of equality in the parents' marriage. Neither of the chi-square tests run were statistically significant.

### *Discussion*

When this study was undertaken, there was curiosity about the differences that might be found between the responses of Canadian adolescents in 1971 and American adolescents in 1959. There is the subtle, if unproven, sociological assumption that Canadians are more conservative than Americans and that western prairie Canadians might reflect strong conservative values relative to marital roles. In addition, it was anticipated that the changes which have taken place in women's roles over the past decade might perhaps be reflected in the data.

The present study reports results that are strikingly consistent with both Dunn's (1960) findings over ten years earlier and Hobart's more recent findings for older youth (1972). Both male and female Canadian adolescents have marital role expectations that are generally equalitarian although females' scores are significantly more so. Looking more closely, sex differences also occur in specific areas of marital interaction. On all subscales except that of homemaking, the percentage of females categorized as equalitarian was higher than that of males. On the authority, care of children, and employment and support sub-scales, these differences were statistically significant at the .05 level.

Given the facilitating factors of increased work participation of women, and societal support for sharing homemaking tasks, one can only speculate as to the reasons for so little change in the marital role expectations of North American adolescents. For females in particular, it is contradictory that while married women are increasingly acquiring jobs outside the home, adolescent females hold fast to marital role expectations that are viewed as traditional in the homemaking area. This kind of marital role expectation, if brought to fruition in marital role performance, carries the seeds of marital role conflict, a condition of contemporary women which has been much noted in the literature (Podell, 1966; Komarovsky, 1946; Arnott & Bengston, 1970; and Bardwick & Douvan, 1971). It would appear that women themselves are clinging to a sex differentiated assignment of household tasks. It is possible, as Hobart (1972) has suggested, that homemaking is seen by women as an area of competence which is exclusively female and that their success as persons is closely bound to others' perceptions of their competence in this role. A young girl is not as likely to see this area as one into which she can allow men, or within which she can cope with competition. It becomes necessary, then, to see these competencies as exclusively feminine, thereby producing a traditional (non-sharing) score on attitudes to sharing or equalitarian participation in homemaking tasks. While one would logically question the relevance of items which are over ten years old, a pretest of the instrument indicated that the seven-subscales



presented were, in fact, reflective of present day marital role behaviour, except that sexual roles were omitted. To compensate for this omission, a separate set of questions dealing with sexual roles in marriage were developed by the authors. Because school policy demanded that these items be used only on an optional basis, they were analyzed separately and eliminated from the data presented in this paper.

Another facet of the socialization of young girls must be examined at this time. Women appear to be socialized to seek fulfillment (self-esteem) through the development of intense and important relationships within the traditional marriage form (Bardwick, 1971). Some of the skills for achieving success are learned very early. Girls quickly learn to relate to the needs and desires of those with whom they are interacting. Adaptability, flexibility, acceptance and non-aggressiveness are characteristically feminine ways of dealing with problems (Bardwick, 1971). These are also characteristics necessary for the perception of marital roles as equalitarian.

Bardwick and Douvan (1971) summarize these arguments as follows:

Success in the traditional tasks is the usual means by which girls achieve feelings of esteem about themselves, confidence and identity. In general they have continued, even as adults, to esteem themselves as they are valued by others; that source of esteem is interpersonal, best earned within the non-competitive, non-aggressive traditional role. (p. 236)

It therefore becomes totally reasonable for girls to express agreement to equalitarian items on a marital roles scale which are considered less applicable to the feminine role, but to be doing so only for highly traditional reasons (because they have been socialized to be adaptable and thus equalitarian). On the other hand, it is also consistent that girls would be very traditional (non-sharing) about the aspects of marital roles which give them their chief source of identity—homemaking.

One possible explanation for finding a difference in the attitudes of young male adolescents to the homemaking area follows similar lines: traditional socializing of boys has been to the acquisition of manipulative, competitive, rational and aggressive skills. Males must see themselves as “thinking and doing” individuals. Young men have been socialized to masculine-type marital responsibilities. Because sharing, adaptability, and dependence are not masculine, it would indeed be strange if young men were to score high on a so-called equalitarian scale. Insofar then, as the traditional items on the Dunn scale coincided with characteristics normally associated with maleness, one would expect male adolescence to produce traditional scores. What was surprising, in both the Dunn study and the present one, was the tendency for males to score equalitarian in the area of household tasks. Most young males are accustomed to seeing their fathers sharing in token areas with the household tasks. Thus to help occasionally with household tasks could be constructed as an acceptable male activity. Performed within the confines of the home on an occasional basis, this sharing probably is not seen as any threat to masculine authority. If the role model provided is an equalitarian one in this area, then the tendency to obtain equalitarian scores in household tasks is not inconsistent with traditional scores on the other scales.

The problem that this data presents to educators is an important one. There is sufficient evidence from studies reported previously about marital



role expectations (Dunn, 1961; Gould, 1961; Hobart, 1972) to indicate that the results reported here support an empirical regularity. Young women's attitudes toward marital roles are decidedly equalitarian with the exception of one area which has always been considered a typically feminine one—carrying out homemaking tasks. This finding suggests several potential consequences for marital interaction. As more women accept the challenge of combining work, home, and family, a traditional view of the household division of labor may create role strain and role overload due to the unrealistic expectations associated with the view. In addition, associating one's personal identity with a specific household function is dangerous in the rapidly changing environment in which we live. The data clearly expose an unrealistic expectation when compared to the role behaviour of husbands and wives today (Nye, 1974).

Designing teaching strategies to respond to this situation calls for a careful analysis of the task. The traditional-equalitarian dichotomy of marital roles should not be placed on a bad-good continuum. Instead, the task is to expose students to a process of attitude clarification. The objectives of this process are to allow students to identify and predict some consequences of their marital role expectations and to test out the effect of shared or conflicting marital role expectations in hypothetical marital problem solving situations.

Identifying one's personal marital role expectations is often a new experience for high school students. The Dunn instrument is a quickly administered and self-scored scale for this purpose. It comprehensively covers marital roles with the exception of sexual roles in marriage. Other methods to allow students to identify personal marital role expectations include the following: a love letter to an imagined fiance stating explicitly what he/she expects from a wife/husband, or devising and using an open-ended interview schedule designed to assess marital role expectations. Films such as *The Three Women Series*, available from the National Film Board of Canada, also provide a good stimulus for a discussion of male and female expectations with regard to specific situations.

The identification of marital role expectations is not enough, however. Students need to test various combinations of husband/wife marital role expectations in situational contexts. A problem solving mode is particularly useful for this process. The problem solving mode for teaching about marital roles is particularly relevant because it allows maximum flexibility in the selection of situations (which is particularly important when some aspects of the roles are changing), it focuses on the notion that seldom is there only one solution to a problem involving human beings, it allows for different values and goals to be explored, and it accentuates the notion of positive goal directed interaction in marital relations.

An example of such a problem solving situation in the employment and support area of marital roles follows:

You are John Hunter, 22 years of age, married to Sue Hunter for little over a year. You have had a job as a computer analyst for a small business firm while Sue finishes her teaching degree. You like your job and are making reasonably good progress. You have an equalitarian view of marital roles. You and Sue have always shared household tasks and before you were married you discussed the fact that both of you wanted to have a career. You were quite supportive of Sue

working to finish her degree so that this goal could be achieved. Now it appears that Sue will be unable to get a job in Alberta but there are several jobs available in British Columbia for teachers in her area. You were quite unprepared for the situation you now find yourself in—you may have to interrupt your own career so that Sue has an opportunity to start hers. The guys at the firm think you are crazy to even consider it.

How would you resolve this situation? Outline both Sue's and John's marital role expectations as you see them. Identify potential conflict and some solutions.

Situations may be specifically written to fit community values and marital patterns or may be obtained from marriage counselling case studies or marriage textbooks using a problem solving orientation (Kieren, Henton, Marotz, 1975). These problem solving situations may be role played or discussed in small groups to vary the format.

Marriage education cannot hope to solve all the complex problems associated with marital conflict and failure but it can hope to make young people more aware of the dynamics and the processes of human interaction. Toward that end, dynamic teaching strategies utilizing empirical evidence in new and creative ways are our hope for creating more satisfying marriages in the future.

<sup>1</sup>The Modern Living section of the Alberta Home Economics curriculum initiated in 1974 offers a marriage preparation unit as do portions of the Social Studies and Psychology curricula. The Edmonton Separate School Board began teaching a marriage course in 1975 and the Edmonton Public School Board has, since 1970, included a marriage unit which presently reaches 2,000 students a year.

<sup>2</sup>Hobart (1972) has subsequently reported a study of the marital role expectations of university-aged youth.

<sup>3</sup>Available from Family Life Publications, Box 427, Saluda, North Carolina.

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## A Comparison of Outcomes in Individual and Group Counseling with Ninth-Grade Girls

*A group of 108 ninth-grade girls in a Commercial Secondary School were randomly assigned treatments with a stratified control for counseling readiness (CsR on the ACL) to one of three counselling treatments: (a) group counseled, (b) individually counseled, and (c) non-counseled (control). Pre- and post-treatment measures were taken on Self Concept (Fitts—TSCS) and on School Attitude (Bell—School Inventory). Significant increases in most dimensions were found, both across treatments and between treatment and control. Although no intermodal differences were significant, the group counseled girls showed larger favourable changes in Self-Criticism, Identity, Moral-Ethical Self, Family Self, and Orientation to School. The individually counseled group showed large favourable changes in Total Self Concept, Self Satisfaction, Behaviour, Personal Self, Social Self. It was concluded that group counseling seemed to produce shifts more related to Self-Actualization while individual counseling produced changes more related to Self-Confidence (Esteem orientation). Some implications to counseling practice and for further research are drawn. (Dr. Wearne is Associate Professor and Chairman of Counsellor Education, and Dr. Powell is Assistant Professor, University of Windsor Faculty of Education.)*

The value and effectiveness of a comprehensive counseling service for youth has been discussed thoroughly in the professional literature. Mahler (1969) proposes that young people must have help in learning how to better understand themselves, to make decisions and solve problems, and to integrate their own personal growth with the increasing complexity of the seventies. Moreover, Leonard (1971) suggests that most students appreciate professional help in their development and cautions counselors that they are quite possibly in error when they provide counseling only for "problem" students who desire help for a particular purpose at any time.

While there is a great deal of literature supporting the use of counseling,

whether it is with individuals or groups of individuals, there is a paucity of research on the effectiveness of counseling with secondary school students within the normal range of behavior. Most reports on counseling outcomes centre around students experiencing either academic underachievement or disciplinary and social adjustment problems. The present study provides needed information on the outcomes of counseling with the general population of ninth-grade girls.

### *Significance of the Study*

Although it is generally accepted that counseling, whether in an individual or group modality, is important to youth in developing a healthy attitude toward themselves and their surroundings, there is little correspondence between writers on whether one method is superior to another. For example, Fiedler (1950) found that the methods of psychotherapy have about the same level of success depending upon the level of sophistication of the therapist. More recently, Combs and Soper (1963) demonstrated that the perceptual organization of good counselors was significantly more positive than for poor counselors. Fullmer (1971) noted the indications are that something other than the formula creates the forces that change behavior; “. . . if counselors are professionally competent, individual or group counseling should equate on results whenever compared” (p. 199).

Accepting the equality of results, group counseling enables the counselor to make more efficient use of available time. Potentially, a well-organized group-counseling program is more effective than individual counseling because the counselor is able to work with more students longer and more intensively.

Numerous writers (for instance, Clancy, 1967; Gazda, 1968; Krumboltz, 1968; Mahler, 1969) have indicated that group counseling appears to be a more efficient and effective technique than individual counseling, and possibly is a more realistic way of helping students.

The need exists, then, to compare the efficacy of individual and group counseling modalities with secondary school students in the normal range of behavior. Specifically, the purpose of the present study was to compare and measure differences in self-concept and attitude toward school between ninth-grade girls who had received group or individual counseling over a 15-week period and girls who had not been counseled.

### *Procedures*

The pretest-posttest control group design was employed. Gazda and Larsen (1968) report this true-experimental design

. . . describes a model in which equivalent groups, as determined by randomization procedures, are used in the experiment. It incorporates many experimental and statistical variations into its model and offers control for all courses of internal validity; and for some, but not all, sources of external variation. (p. 62)

### *The Sample*

The subjects in this study were 108 ninth-grade girls attending an urban, commercial secondary school. The 108 girls were selected from among 223 students as follows:

1. The 30 male students registered in grade nine were not included.

Havighurst (1965) posits that females and males experience differing developmental tasks and thus require different treatment. Further, the West (1971) study reported the existence of self-disclosure problems between ninth-grade boys and girls. The elimination of boys from the study controlled for this variable.

2. The elimination of 33 female students was required to maintain as closely as possible subjects in the normal range of behavior. Specifically, teachers reported that 22 students were seriously underachieving and/or experiencing emotional difficulties; another 11 girls reported they were recipients of help through a local agency.

3. The Adjective Check List (1965) was administered to all ninth-graders, and the Counseling Readiness (CsR) score obtained. Scores obtained by the remaining 160 girls were randomly distributed to form five regions as indicated in Table 1.

TABLE 1  
DISTRIBUTION OF COUNSELING READINESS SCORES

Standard Score Band	Frequency
25 - 39	28
40 - 44	28
45 - 49	56
50 - 54	25
55 - 64	23

From the five regions, 18 students from each of the first, second, fourth, and fifth regions and 36 from the third region were randomly assigned to one of the treatment or control groups. Through the placement of subjects in groups, 18 groups of six students were formed: six groups to be counseled individually; six groups to be group-counseled; and six control, or non-counseled, groups.

4. Additionally, all subjects completed the Tennessee Self Concept Scale (1965) and The School Inventory (1963) before and after the 15-week treatment period.

*The Counselors*

Each of the three resident counselors in the school was randomly assigned to provide group counseling to two groups (12 subjects), and individual counseling to 12 subjects (two groups). Employing Combs' (1969) procedures, a prestudy evaluation of the counselors indicated each exhibited a positive perceptual organization. The implication of these findings tends to indicate each can be described as an "effective" counselor.

*Statistical Procedures*

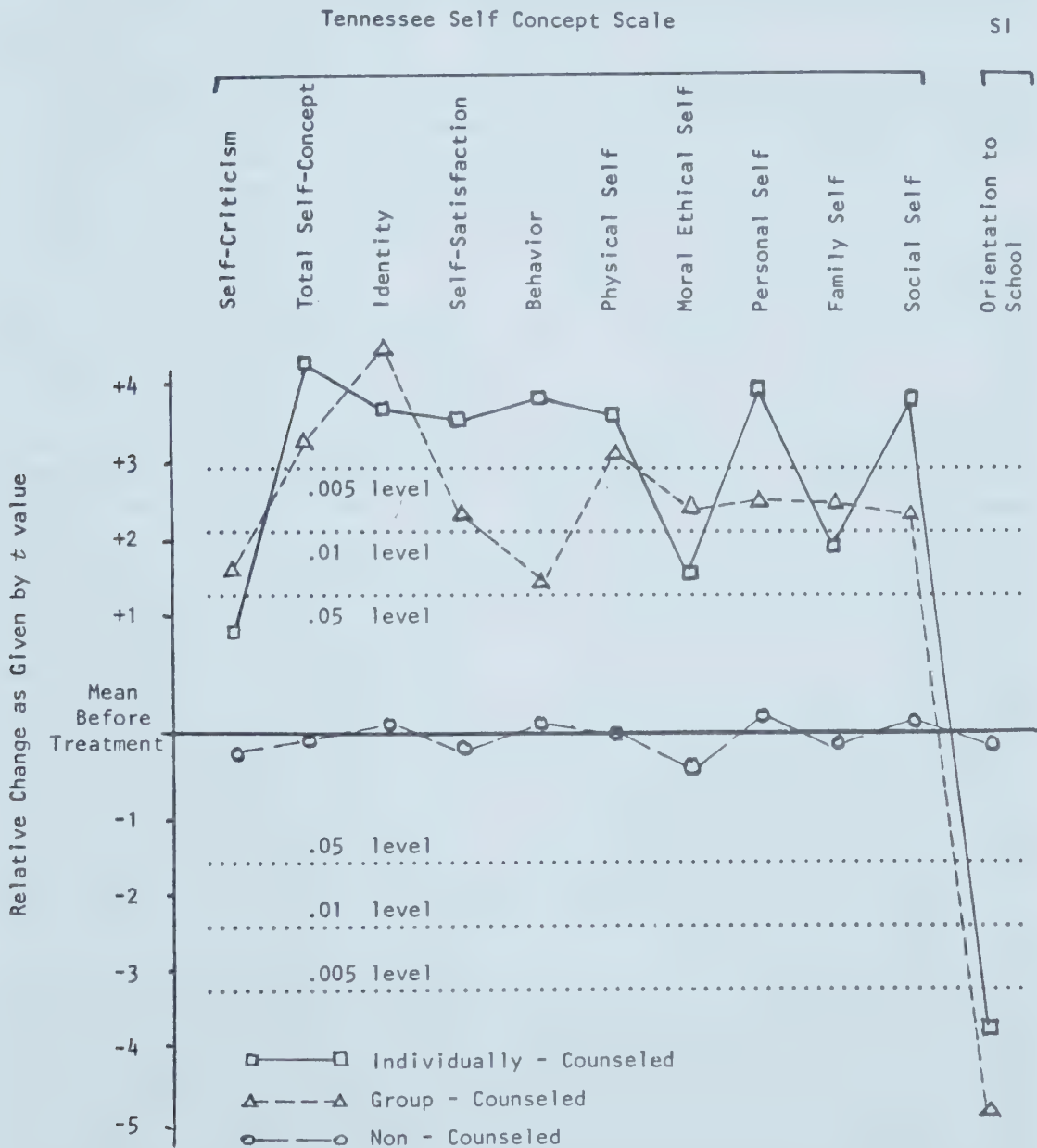
To determine and analyze mean differences in change, analysis of variance (*F* test) was computed within and between groups, before and after the treatment period. In addition, *t* tests were conducted on selected parts of the data.



## Results

The effects of the counseling sessions are represented in Figure 1 which displays the corresponding values for students'  $t$  for each group with respect to their before and after mean values on each subscore of the Tennessee Self Concept Scale (TSCS) and on the School Inventory (SI).

FIGURE 1  
GRAPHICAL REPRESENTATION OF  $t$  VALUES FOR THE BEFORE-AFTER  
WITHIN-GROUP COMPARISONS



Note: Low scores on the School Inventory (Orientation to School) represent high acceptance of the school setting.

It should be noted from Figure 1 that none of the changes for the non-counseled groups were statistically significant. Alternately, only the change

for the Self-criticism subscore for the individually-counseled was not significant.

For the remainder of the comparisons possible, Table 2 gives all of the *t* values obtained along with their relative significance levels. It should be noted from Table 2 that virtually all comparisons with the non-counseled group are significant except for Self-criticism for both groups and Family Self for the group-counseled group.

TABLE 2  
SIGNIFICANCE OF COMPARISONS AMONG VARIOUS VARIABLES IN THE STUDY

Scale	Pretest Comparisons			Across Treatment Comparisons			Posttest Comparisons		
	G/C	G/C	I/C	G/C	I/C	N/C	G/C	G/C	I/C
	vs	vs	vs	vs	vs	vs	vs	vs	vs
	N/C	I/C	N/C	G/C	I/C	N/C	N/C	I/C	N/C
Self-Criticism	-1.05	- .09	-1.02	-1.92*	-1.06	.16	1.05	.80	.27
Total self-concept	- .83	- .72	- .15	-3.47***	-4.19***	.08	3.03***	-1.26	4.45***
Identity	-1.55	-1.32	- .33	-4.27***	-3.73***	.01	2.70***	- .75	3.34***
Self satisfaction	- .75	-1.05	.29	-2.40***	-3.52***	.23	2.12*	-1.37	4.52***
Behavior	.10	.51	- .43	-1.83*	-3.66***	.01	2.22*	- .82	3.40***
Physical self	- .10	- .58	.44	-3.43***	-3.59***	.00	3.32*	- .68	4.21***
Moral-ethical self	- .88	- .21	- .48	-2.46**	-2.04*	.53	2.61**	- .76	2.69***
Personal self	- .26	- .39	.10	-2.51**	-3.93***	.22	2.39**	-1.28	3.78***
Family self	-1.14	-1.54	.06	-2.48**	-2.31*	.06	1.11	-1.28	2.69***
Social self	- .23	.26	- .51	-2.41**	-3.68***	.20	1.99*	- .72	2.96***
Orientation to school	1.20	.53	.61	5.00***	4.15***	.10	-2.49**	1.47	-3.49***

\* Significant at the .05 level  
\*\* Significant at the .01 level  
\*\*\* Significant at the .005 level

No significant differences were found between the group-counseled and individually-counseled girls.

Finally, it should be noted that the relative sizes of the girls' *t* values for the comparisons between the group-counseled and individually-counseled girls are inconsistent with the relative displacements evident in Figure 1. This inconsistency may be a product of between group differences in the pretest means and variances. These differences were not significant (see Table 2) but may have been large enough to influence this latter result. It is possible that a covariance procedure would have shown some significant differences between individually counseled and group-counseled subjects.

Discussion

It is quite clear that both counseling modalities produced changes in self-concept and orientation to school. Furthermore, no statistically significant

differences were found between the means of the individually- and group-counseled subjects. It is noteworthy, however, that this finding may be a product of the analytical procedures used.

For this reason it would seem valid to speculate about the possible significances of the comparative values shown in Figure 1.

Since all the girls'  $t$  values are derived from the same curve (i.e. with 70 degrees of freedom) these values are logically comparable although no direct measure for the significance of these differences exists.

From Figure 1 we find the individually-counseled group higher in their  $t$  values on Total Self-concept, Self-satisfaction, Behavior, Physical Self, Personal Self, and Social Self.

The relatively high value on Behavior (which involves self-report) must be considered with caution because this group did not increase significantly in Self-criticism. Aside from this, all gains which are higher than those for the group-counseled girls are in self-oriented aspects of self concept.

The group-counseled girls, alternatively, had higher  $t$  values on Self-criticism, Identity, Ethical Self and Orientation to School. If the increase in Self-criticism is influential in the relatively lower self-report on the Behavior scale, then the "going beyond self" or "others" orientation of this combination may be very meaningful.

For both groups the Self-criticism scores are in the healthy mid-range. Also, both groups saw the school as far more appropriate to their needs than previously. If we assume that a self-actualizing person tends to be "going beyond self" oriented and more than usually self-critical, then these observations make considerable sense. The hypothesized highly self-critical nature of self-actualizing people is proposed on the grounds that these people seem to use the results of their input into a situation as feedback for the self-modification of future behavior.

Thus the overall comparisons would suggest that the individually-counseled girls became more self-directing, or, if you wish, more focused upon the enhancement of their own competence. This would suggest a strengthening of their orientation at the Esteem level of Maslow's hierarchy. The group-counseled, on the other hand, would seem to have become more self-actualization oriented. In both cases such individuals would be expected to see the school as much more appropriate to these strengthened needs than previously.

The typical school experience tends to focus upon the study of the opinions and accomplishments of others rather than the development of opinion generation skills and strengthening of personal competence. For this reason, we would expect school to be substantially more relevant to the self-actualizer, than to the esteem oriented person. Parenthetically, we would also expect the esteem oriented person to see such school experiences as substantially more relevant than the socially (affiliation) oriented person. It is not surprising, therefore, to find the group-counseled girls substantially more favorable in their orientation to school experiences than their individually-counseled classmates.

Although the significance data does not support these conclusions, it seems reasonable from the comparison of profile values to propose that the



different counseling procedures had differential effects upon the girls involved. In this sense, we would expect individual counseling to strengthen esteem needs and group counseling to strengthen self-actualization needs. Thus it may be that the nature of experience rather than the level of need is the prime determiner of behavioral outcomes. This observation is not in agreement with Maslow's hypothesized need structure, but supports the learning theorists' position instead, as noted by Sawrey & Telford (1967).

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## Teaching Attitudes and Behaviours of Preschool Personnel: Curriculum Variations

*A self-administered rating scale was given to 14 preschool teachers employed in seven settings. In addition, the teachers were observed and their teaching behaviours were classified on a schedule which complemented the rating scale. The results indicated that teachers employed in the same settings generally agree with each other about curriculum strategies and behave similarly. the attitudes and behaviours of day care teachers did not relate highly to those of Montessori teachers. However, day care teachers were similar to cooperative nursery personnel both in terms of their expressed attitudes and overt behaviour. (Dr. Rubin is currently Associate Professor of Psychology and Ms. Hansen is a doctoral student in Psychology, both at the University of Waterloo.)*

During the 1960s, volume upon volume of preschool educational research was produced in the United States in an effort to outline the importance of early experience in the intellectual and social development of young children (see Evans, 1975 for a review of U.S. research efforts). To a much lesser extent, researchers and educators in Canada have attempted to describe the merits of early childhood education for both disadvantaged and advantaged preschoolers (e.g., Bowen, 1974; Rubin, 1976). In general, the research to date has been of a summative, comparative nature (Messick & Barrows, 1972). Thus, in evaluating programmatic effects, wide use has been made of the classic experimental model in which children attending an innovative programme (experimental group) are compared with a matched sample of children not attending preschool (control group). Comparisons are usually made prior to being introduced to the experimental environment as well as one academic year after. The outcome measures usually consist of IQ or other cognitive or social developmental scores.

One basic weakness with research of this kind rests with the methodological strategy employed. Thus, in comparisons of children who are in an innovative programme with those in a traditional nursery or a

non-treatment control group, the authors report differences in children's performance resulting from curriculum variations between programmes. Unfortunately, in summative research there is rarely more than a cursory, subjective description of what, in fact, happens within the context of each classroom that could possibly have accounted for the reported outcome differences in children's performances.

Although summative, comparative research is important and interesting, a closer look at what happens within the classroom seems necessary to make sense of the findings of such research. Thus, this study was undertaken to discover whether or not theoretical differences in curriculum variation could be ascertained empirically through an examination of teacher attitudes and behaviours. First, the study was concerned with whether or not teachers employed in the same settings could agree with each other concerning expressed optimal educational strategies for preschoolers. Second, it looks at whether or not teachers employed in the same settings behaved similarly with the children in their classes. Third, the relationship of teachers' attitudes and behaviours among a number of settings purporting to derive from the same conceptual viewpoint were studied. Of particular interest was whether or not teachers who worked in different day care centres, on the one hand, and different Montessori schools, on the other hand, shared common beliefs and academic behaviours within each type of programme. Finally, the study discusses the relationship of teachers' curricular attitudes and behaviours among a variety of settings having different conceptual viewpoints (e.g., day care, Montessori, "traditional nurseries," and cooperative centres).

Hypothetically, a "classroom curriculum" exists if teachers within a single school setting express similar beliefs about optimal educational strategies and if they exhibit similar behaviours within the setting. Again, hypothetically, a "theoretical curriculum" exists if teachers employed in settings sharing a single conceptual or theoretical viewpoint express similar attitudes and behaviors. Finally, if curricula evolve from different conceptual frameworks, then teachers employed therein should not share similar curricular beliefs or express similar classroom behaviours.

### *Method*

#### *Subjects*

The subjects included 14 female preschool teachers employed in seven different early education settings in Waterloo County, Ontario. These settings included a traditional nursery, a cooperative early education centre, three day care centres, and two Montessori schools. All participants were persons who responded to an initial request for volunteers to take part in an *Association for Early Childhood Education: Ontario* research project. Two full-time teachers were then randomly chosen from each of seven centres. A brief description of each type of preschool setting is presented in Table 1.

#### *Procedure*

A questionnaire concerning teachers' curriculum beliefs was mailed to all participants. In addition, all teachers were asked to allow two trained research assistants to visit the classroom to observe their teaching behaviours. The questionnaire and observation scales are described below.



TABLE 1  
BRIEF DESCRIPTION OF THE CHARACTERISTICS OF EACH PRESCHOOL SETTING

<i>Day Care:</i>	Physical care oriented; curriculum not based on any discernable developmental theory; stress on learning through play; full day programme.
<i>Cooperative:</i>	Play and social orientation; curriculum not based on any discernable developmental theory; use of parents as teachers and aides; half-day programme.
<i>Traditional:</i>	Social and physical orientation; curriculum not based on any discernable developmental theory (if any theoretical orientation it would be "maturation" based); circle and group games; half-day programme.
<i>Montessori:</i>	Cognitive orientation with often purposeful lack of social orientation; based on developmental principles and theory; structured learning environment; half-day programme.

*Teacher Belief Rating Scale (TBRs)*<sup>1</sup> - The TBRs is an attitude scale designed to assess teachers' beliefs concerning broad curriculum practices (Verma & Peters, 1975). Five curriculum dimensions are represented on the TBRs; these may be summarized as being a belief (1) that children are active vs. passive learners; (2) that children are qualitatively like vs. qualitatively unlike adults; (3) that children learn best through intrinsic motivational vs. extrinsic motivational means; (4) that children learn best when given general types of experience vs. specific training; and (5) that children learn best in a process-oriented vs. product-oriented classroom environment. Each of the 24 TBRs items was characteristic of Likert-type variables with a range of responses varying from "strongly agree" to "strongly disagree". A score of 6 was given for the most highly "flexible" process-oriented answers, whereas a score of 1 was assigned to the most "rigid" product-oriented answer. Typical of the TBRs items was the statement: "Teacher stresses using materials in prescribed ways." A "strongly agree" answer would have been accorded a score of one. All items were taken directly from Verma and Peters (1975).

*Teacher Practices Observation Form (TPOF)*—The TPOF was developed by Verma and Peters (1975) in order to formulate observable behavioural categories which corresponded to the items on the TBRF. In the present study each teacher was observed for 10-13 one-minute time samples over a single one-hour class period during free play by a female graduate student. Each behaviour category was simply checked if it occurred during any given one-minute interval. In addition, all teacher behaviours were briefly described following each minute of observation.

Since some teachers were observed for more time samples than others, all data were transformed such that the behaviour scores were divided by the number of observation intervals. Thus, for example, if Teacher X received 8 checks for "teacher watches child" over 10 intervals, she would have received a score of .8. If Teacher Y likewise received 8 checks, but over 12 intervals, she would have received a transformed score of .67.

Once again, all categories were taken from Verma and Peters (1975). The behavioural items were subsumed under the following general headings: (a) teacher follows vs. directs; (b) teachers adapts vs. does not adapt to

children’s behavior; (c) intrinsic vs. extrinsic motivation; (d) child discovery vs. teacher training; and (e) teacher stresses process vs. product learning.

Seven behavioural categories were added to the original Verma and Peters (1975) scale. These categories were: (a) teacher helps child; (b) teacher watches child; (c) teacher ignores child; (d) teacher gives physical affection or comfort; (e) teacher gives verbal comfort; and (f) teacher follows child.

The TBRS and TPOF validity and reliability data are found in Verma and Peters (1975).

Results

Teacher Belief Rating Scale

Pearson product-moment correlation coefficients were first calculated between the curriculum *attitudes* of those persons working within the same setting. Thus, a teacher’s responses on the attitude scale were correlated with her colleague’s ratings. The correlations within classrooms are presented in Table 2.

TABLE 2  
CORRELATIONS OF TEACHER ATTITUDES (TBRS) AND TEACHER  
BEHAVIOURS (TPOF) WITHIN EACH CLASSROOM

School	TBRS <i>r</i>	TPOF <i>r</i>
<u>Day Care</u>		
School A	.49*	.77**
School B	.30	.58*
School C	.70**	.84**
<u>Traditional</u>		
School D	.36	.81**
<u>Cooperative</u>		
School E	.67**	.60*
<u>Montessori</u>		
School F	.53*	.74**
School G	.72**	.79**

\* *p* < .01  
\*\* *p* < .001

Briefly, the results indicated that in five of the seven classes studied there was significant agreement among the teachers concerning how children should best be taught. The correlations within one day care class and within the traditional nursery school were non-significant.

The data for the three day care centres and two Montessori schools were then considered in an effort to discover whether teachers within any given theoretical framework agreed with each other about curriculum goals, regardless of their place of employment. Thus the day care teacher’s attitudes were intercorrelated as were the attitudes of Montessori teachers. If a separate “classroom curriculum” existed within each class (i.e., if day care

was not a “unitary construct”), then the between teacher correlations presented in Table 3 would not be significant. The correlations between the attitudes of teachers in the day care groups are presented in Table 3. It is noteworthy that only 7 of the 12 possible *between* class correlation coefficients were significant. This finding questions the notion that day care is a unitary concept, unchanging from class to class.

TABLE 3  
CORRELATIONS BETWEEN CURRICULUM ATTITUDES OF DAY CARE  
TEACHERS, MONTESSORI TEACHERS

Teacher	Day Care						Montessori			
	School A		School B		School C		School F		School G	
	1	2	3	4	5	6	7	8	9	10
2	.49 <sup>a*</sup>									
3	.59**	.43*								
4	.30	.53**	.30 <sup>a</sup>							
5	.52**	.25	.38	.44*						
6	.31	.22	.52**	.53**	.70 <sup>a***</sup>					
7										
8							.53 <sup>a***</sup>			
9							.76***	.48*		
10							.60**	.47*	.72 <sup>a***</sup>	

a within class correlation  
\*  $p < .05$   
\*\*  $p < .01$   
\*\*\*  $p < .001$

The correlations between the attitudes of the teachers in the two Montessori schools are also presented in Table 3. In this case, all between class correlations are significant thereby supporting the belief that a Montessori system exists—at least in terms of shared curriculum beliefs.

Finally, three schools representing different conceptual models were randomly chosen from the seven participating schools in which two teachers were present. The schools included a cooperative, a day care, and a Montessori centre. It seemed reasonable to expect considerable similarity among teachers working within a given theoretical framework, as indicated above. The question to have been answered in the following analysis was whether or not teachers employed in classrooms varying in conceptual background would be in basic agreement concerning their attitudes towards teaching preschoolers. Inter-teacher correlations are presented in Table 4. The data clearly indicate that day care teachers agree with cooperative personnel concerning how best to deal with preschool-age children. All four between teacher correlations are significant with the average between class correlations being .63. The day care group could not, however, agree consistently with Montessori teachers, and the correlations were thus low (Mean  $r = .43$ ). Likewise, the average correlation between cooperative and Montessori teachers was only .46.



TABLE 4  
CORRELATIONS BETWEEN CURRICULUM ATTITUDES OF TEACHERS IN A  
VARIETY OF SETTINGS

Teacher	Day Care		Cooperative		Montessori	
	T1	T2	T3	T4	T5	T6
1	1.00					
2	.30 <sup>a</sup>	1.00				
3	.57**	.61**	1.00			
4	.73***	.58**	.67 <sup>a</sup>	1.00		
5	.44*	.40	.21	.62**	1.00	
6	.32	.54**	.45*	.53**	.53 <sup>a**</sup>	

<sup>a</sup> within class correlation  
\*  $p < .05$   
\*\*  $p < .01$   
\*\*\*  $p < .001$

Teacher Practices Observation Form

As in the previous section, correlation coefficients were calculated between teachers' *behaviours* with each given classroom. The correlations are presented in Table 2. Briefly, all correlations were high, ranging from .60 to .84.

The data for the day care and Montessori groups were again analyzed to consider the relationship between teachers' behaviours within a given conceptual framework. The correlations between the behaviour of teachers employed in different day care centres are presented in Table 5. Based on the

TABLE 5  
CORRELATIONS BETWEEN CURRICULUM BEHAVIOURS OF DAY CARE  
TEACHERS, MONTESSORI TEACHERS

	Day Care						Montessori			
	School A		School B		School C					
Teacher	1	2	3	4	5	6	7	8	9	10
2	<div><div>.77<sup>a**</sup></div><div>.52*    .39</div><div>.70**    .50*    .58<sup>a*</sup></div><div>.77**    .61*    .80**    .72**</div><div>.92**    .79**    .62*    .65**    .84<sup>a**</sup></div></div>									
3										
4										
5										
6										
7							<div><div>.74<sup>a**</sup></div><div>.59*    .54**</div><div>.62*    .51*    .79<sup>a**</sup></div></div>			
8										
9										
10										

<sup>a</sup> within class correlation  
\*  $p < .01$   
\*\*  $p < .001$

fact that 11 of the 12 possible between class correlation coefficients were significant, it is reasonable to conclude that teachers employed in various day care centres do behave similarly.

The correlations between teacher behaviours in the two Montessori classes are also shown in Table 5. As with the attitudinal data, all four between class correlations were significant thereby supporting the behavioural generality of the Montessori method.

Finally, the three schools representing different theoretical models were examined to discover the similarities of teacher behaviours from model to model. The correlations are presented in Table 6. The data indicate moderate behavioural similarities between teachers working in day care and cooperative preschool centres. Two of the four between teacher correlations were significant with the average between day care-cooperative correlation being a rather low .42. As with the attitudinal data, there was little similarity between the day care and Montessori teachers. The average correlation was but .36. Again, much like the attitudinal data, the cooperative teachers were more similar, behaviourally, to the Montessori teachers than were the day care teachers. Three of the four cooperative-Montessori correlations were significant with an average correlation of .46. It is worth noting that each of the *within* class correlations (i.e. correlations between teachers in day care,  $r = .58$ ; cooperative centres,  $r = .60$ ; and Montessori schools,  $r = .74$ ) was higher than the average relevant between school correlations cited above.

TABLE 6  
CORRELATIONS BETWEEN BEHAVIOURS OF TEACHERS IN A VARIETY OF SETTINGS

Teacher	Day Care		Cooperative		Montessori	
	T1	T2	T3	T4	T5	T6
1	1.00					
2	.58 <sup>a**</sup>	1.00				
3	.57**	.47*	1.00			
4	.36	.29	.60 <sup>a**</sup>	1.00		
5	.29	.27	.54**	.47*	1.00	
6	.36	.52**	.34	.50**	.74 <sup>a***</sup>	1.00

a within class correlation  
\*  $p < .05$   
\*\*  $p < .01$   
\*\*\*  $p < .001$

Discussion

One purpose of the present study was to assess whether or not teachers working in the same preschool setting, regardless of programme format, shared similar attitudes and behaviours. The results indicated that in five of the seven schools studied, the teachers could agree with each other about the most desirable educational strategies to use with preschoolers. These findings contradict earlier reports by Moffitt (1974) and Taylor (1975) who

indicated a lack of correspondence between teachers' curricular attitudes in the same setting. This general difference may be a function of the different teacher attitude scales used in the various studies. Moreover, the two classes in which teachers did not express similar attitudes in this study may have been much like those preschools studied by Moffitt and Taylor.

One encouraging finding was the consistent similarity of teacher behaviours within the same setting. According to Moffitt (1974) it is much more significant that teachers behave consistently than express consistent curriculum attitudes. Moffitt believes that teachers may not have the requisite verbal repertoires to express their attitudes clearly. Thus, how teachers think may be better assessed through their behaviours. A future study might do well to consider the relative effects of programmes which lack teacher consistency in attitudes and behaviours vs. those which lack consistency in either area vs. those which are consistent throughout on children's cognitive and social competence. It may be that programmes in which there are inconsistent teacher behaviours are not as effective in producing developmental change in children as those programmes in which teachers behave consistently toward the children.

A second purpose of the study was to discover whether or not teachers who worked in similar programmatic settings shared similar attitudes and behaviours. The importance of this goal relates to the issue of whether or not programmes which share the same name on paper actually look the same in the field. The attitudes of day care centre teachers employed in three different settings were not found to be generally similar. However, their behaviours were consistently similar — a finding which speaks to the issue of defining the existence of "programmes" or "curricula" behaviourally.

All attitudes and behaviours of teachers working in two Montessori schools were significantly intercorrelated. The more consistent verbal agreement regarding optimal teaching strategies among the Montessori as opposed to the day care teachers may be a function of the form of education received by the former group. Montessori teacher training institutes may tend to leave an indelible and non-malleable mark on the minds of their "disciples". The finding of consistent behaviours between teachers in Montessori schools contradicts the expressed belief that the "Montessori method" is but a myth and that few Montessori programmes are alike (Banta, 1972). However, both of the programmes under study were in the same small county and may have shared programmatic ideas between them. Further studies would do well to consider more than two schools of a single theme.

Finally, the results indicated moderate similarities between the expressed attitudes and behaviours of teachers employed in day care and cooperative nursery centres. These similarities may be the result of the play orientation of the schools, as well as the fact that neither centre derived its curriculum from any discernible theory. Day care and Montessori teachers had little in common concerning expressed attitudes and behaviours, thereby supporting the notion that the two represent rather radical differences in programmatic theme and purpose. The primary purpose of day care centres is the physical care of the child, whereas the primary purpose of Montessori schools is to develop children's cognitive skills. Moderate attitudinal and behavioural



similarities were also found between the cooperative and Montessori centres, thereby implying that the former model represents a mid-point in a care-to-educationally oriented curriculum.

In conclusion, it is important that future early childhood education research endeavours take into account the attitudes and behaviours of those persons employed in the centres under study. If a programme is found to be ineffective in producing gains of any sort in preschoolers, then it may be that the teachers within the programme are providing inconsistent behavioural models. Moreover, only through the formative analysis of teacher behaviours can practitioners be made aware of what it is that makes a "successful" programme successful. Canadian researchers would thus do well to avoid the summative, pre- to post-test designs of "model" programmes until further formative descriptions of those programmes are made available.

This investigation was supported in part by an Association for Early Childhood Education: Ontario research grant. I would like to thank Stephen Maron who aided in the collection and coding of the data. Thanks also go to all teachers who kindly participated in the study. Reprints may be requested from Kenneth H. Rubin, Department of Psychology, University of Waterloo, Ontario, N2L 3G1.

<sup>1</sup> Full copies of the TBRS and the TPOF are available upon request from the author.

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2. Tables must be numbered in Arabic numerals with the word 'Table' centred and in capital letters, e.g., TABLE 4. The heading of the table is to be centred below and typed in capitals. The format of tables should conform to the specifications in the APA Publications Manual.
3. Graphs and charts should be used only if essential. They must be carefully prepared on separate sheets in India ink, ready for reproduction. Graphs must be properly labelled using Arabic numerals, e.g., Figure 3.
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7. In matters of style, the APA Publication Manual is considered definitive.





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FACULTY OF EDUCATION  
*The University of Alberta*





L. W. KRYWANIUK

*The University of British Columbia*  
and

J. P. DAS

*The University of Alberta*

## Cognitive Strategies in Native Children: Analysis and Intervention

*Forty Canadian Indian children in grades 3 and 4, designated as low achievers, were given a set of cognitive and intelligence tests including WISC. It was found that the children had inefficient sequential learning processes. The children were then divided into two groups and received a minimum and a maximum remediation program to improve sequential strategies. The main finding in the group receiving maximum remediation was a significant improvement in sequential tasks such as auditory and visual memory and reading tests. Learning strategies can thus be modified by appropriate remedial programs to enhance cognitive competence. (Dr. Krywaniuk is Assistant Professor in the Department of Special Education, The University of British Columbia; Dr. Das is Director of the Centre for the Study of Mental Retardation, Faculty of Education, The University of Alberta.)*

North American Indian children generally show a low verbal development when compared with the national norms, but often have average or above average performance abilities (Cazden & John, 1968). This has been associated with a visual style of learning (Havighurst, Gunther & Pratt, 1946) and with the fact that the child may suffer from first language interference of English development (Cazden & John, 1968). There has, however, been very little work done on the ability patterns among native children. One suspects that school success depends heavily on a certain pattern of abilities rather than on a single one, and that failure in school is based on the styles of learning employed (Havighurst, 1970).

Several studies have demonstrated that variations in the patterns of cognitive abilities exist among ethnic groups (Lesser, Fifer & Clark, 1965; Stodolsky & Lesser, 1968). We have chosen to focus on two broad cognitive abilities—simultaneous and successive. Previous work (Das, 1973a, 1973b; Luria, 1966a, 1966b) indicates that the two categories include a broad range

of memory and reasoning tasks. Successive and simultaneous syntheses as modes of information processing was first mentioned by Luria (1966a, 1966b). His extensive observations of the psychological effects of brain lesions led him to suggest that the two types of integration are located in specific parts of the brain: the parietal-occipital (simultaneous) and fronto-temporal (successive) lobes. Das (1972) has assumed Luria's basic conceptualization and has found evidence that the simultaneous and successive strategies to some extent are used at the discretion of the individual (Das, 1973b).

However, no task is purely simultaneous or successive, but involves elements of each, and can be approached with some combination of both strategies. It is in this combination where individuals, and indeed cultures, vary. Das has shown that different individuals and groups vary in their approach to specific tasks. This evidence suggests that the strategies are learned and differences in cognitive functioning are based on the appropriateness of the strategies used. The importance of this finding lies in the fact that as strategies are learned, they can be taught and can therefore be changed where they are inappropriate. This aspect is the focus of the present study.

### *Method*

#### *Subjects*

Forty grade 3 and 4 students at Ermineskin School in Hobbema, an Indian reservation 50 miles from Edmonton, were used in the study. The subjects, as a group, were rated by teachers as constituting the lowest third of the class in terms of school achievement.

#### *Tests*

A battery of tests<sup>1</sup> was given to each subject. The tests were: Wechsler Intelligence Scale for Children (WISC), Raven's Progressive Matrices, the Figure Copying Test (FCT), Memory for Designs test (MFD) developed by Graham and Kendall (1960), a Serial Learning test (Orn & Das, 1972) using lists of acoustically and semantically similar words presented on tape, a Visual Short-term Memory test (VSTM) using random numbers presented in a five-cell matrix in the form of a cross by a slide projector (Orn & Das, 1972), the Stroop test (Stroop, 1935), a modified form of the Birch and Belmont (1965) Cross-modal Coding test (CMC) which presented patterns of auditory sounds for visual recognition, and the Schonell Graded Readiness Vocabulary test. Raw scores were used for the Raven and Schonell tests. Serial Learning and VSTM tests were scored both for serial position and free recall of items.

### *Results*

A summary of the pretest scores is found in Table 1. The results of the pretest scores were analyzed so that a remediation program could be designed. As was anticipated, the group scores on the WISC indicated low verbal abilities, but also higher (within average range) performance abilities. When the Raven scores were converted into percentiles, it was found that slightly more than half of the group was above the fiftieth



TABLE 1  
MEANS OF PRETEST SCORES

Test	Mean	SD
WISC Verbal	78.05	11.70
Performance	93.39	12.24
Full Scale	83.66	11.57
Progressive Matrices (raw scores)	23.08	4.05
Schonell (raw scores)	27.81	11.21
Cross-modal Coding (out of 20)	10.79	4.09
Figure Copying (out of 20)	12.08	2.19
Serial Learning (out of 192)		
Serial Position Recall	91.52	31.01
Free Recall	126.05	29.52
Memory for Designs (error score)	3.81	2.80

percentile. The high WISC Performance scores and the Raven scores suggested that these children had adequately developed spatial abilities. On the other hand, the WISC Verbal and the results on the Schonell and Serial Learning tests suggested difficulties in the verbal area.

Consistent with the theoretical assumptions stated earlier, these findings indicated good simultaneous strategies but poor successive strategies in cognitive operations. It was felt that the inefficient successive strategies could be improved by an appropriate remedial program. Thus, an appropriate intervention program was designed. Its effect was evaluated by dividing the sample into two groups of subjects matched on the WISC scales. Group I (Experimental) was given a treatment consisting of approximately 15 hours of remedial experience, and Group II (Control) was given a minimum treatment consisting of approximately three hours of experience.

*Intervention Procedure*

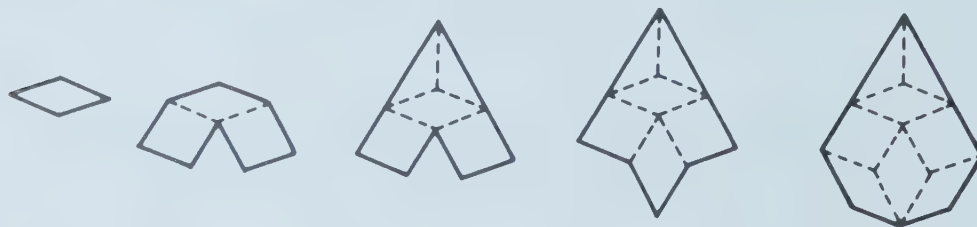
A brief description of the intervention is provided here. The objective of the program was to improve the use of successive strategies by the subjects; the improvement expected in the experimental group would be significantly greater than that in the control group. Subjects were trained in the following tasks with appropriate instructions in order to facilitate their use of sequential strategies.

In the remediation program, verbalization was encouraged in the development and use of memory and recall strategies. It has been suggested (Jensen, 1971; Sperling, 1963) that both visual and auditory stimuli are encoded verbally into a single short-term store. Whereas adults spontaneously organize and encode in this fashion, children do not (Bernbach, 1967; Kingsley & Hagen, 1969), although they can do so if they are instructed (Jensen & Rohwer, 1970). These findings are consistent with the theoretical assumptions presented earlier and with Luria's (1961, 1966a, 1966b) conceptualization of verbal mediation.

*Sequence Story Boards.* There were three separate stories, each consisting of 12 pictures which could be arranged to tell a complete story. The

completed form took the form of three rows of four pictures each, similar in arrangement to a page of printed material. On three separate occasions the child was given one story (12 pictures) in random order and asked to arrange the pictures into the prescribed format. He was encouraged to examine each picture and to verbalize during their arrangement. A minimum of help was given; usually an indication of the first picture was sufficient where any help was needed. The child was also required to tell the completed story. Anomalies in the arrangement were pointed out, and the child was required to correct them and proceed toward the end until the complete story was told.

*Parquetry Designs.* The materials for this task consisted of a number of squares, triangles and rhombuses of various colors, which could be fitted together to form visual patterns, as well as templates providing the patterns to be made. At first, the child built patterns by placing colored tiles directly upon the colored template, then proceeded to construct patterns by using the colored templates only as a reference. For subsequent sessions, color was removed as a cue, along with the internal lines. Several series of outline forms were developed, one of which is presented below. Each outline form was presented on a separate sheet of paper. The series progressed by the addition of more and more pieces to an already completed pattern. In each case, the total pattern was to be reconstructed. The most efficient strategy was to remember the relationships involved in the previous pattern and then add new pieces. Each subsequent series presented was more difficult than the previous one and thus reinforced the importance of memory as a strategy.



1. Parquetry Designs

*Serial Recall.* In this task 12 common objects were shown to a child for a short time and then taken away. The child was required to recall as many objects as possible. As each one was recalled, it was placed in front of him. He was shown the remaining articles and again they were removed. This procedure was repeated until he could name all objects. In the second presentation, 12 different objects were used. The child was encouraged to group them according to some criterion before they were removed. They were then recalled in the procedure described above.

*Coding.* Hand and knee “claps” were coded as dots and squares, respectively, and presented in rhythmic patterns similar to those on the Cross-modal Coding test. Each pattern was presented separately and the child was expected to “decode” the pattern into the appropriate rhythm of claps. The series of patterns was graded in difficulty. Some examples are provided below.

*Matrix Serialization.* During the administration of the Visual Short-term Memory test, it was noticed that the children did not have a consistent recall

(a) □ □ ● ●

(c) □ ● ● □

(b) ● □ □

(d) ● ● □ ● ●

2. Hand “claps” (dots) and knee “claps” (squares) sequences

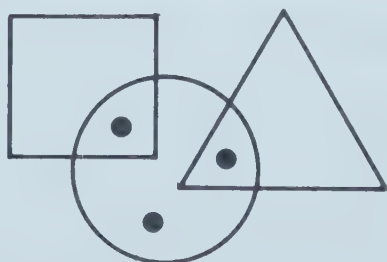
pattern in terms of spatial organization. For this reason, it was decided to establish a search and recall pattern consistent with the reading pattern: top to bottom, left to right. To achieve this, several series of matrices were developed, as shown, that were identical in format to those used in the Visual Short-term Memory test. The first five matrices in any one series were presented singly, and the child was required to read each number as it appeared. He was asked to repeat the whole series from memory, in the order presented. He was then shown the complete matrix for confirmation. If he made an error, he read the correct series aloud from the complete matrix and then recalled it again. The number sequences were graded in difficulty. In later sessions, he was shown only a complete matrix and was asked to read it in the prescribed order, and then recall it.



3. Successive matrices for teaching serialization strategy

*Filmstrips.* A total of five filmstrips were prepared: Visual Discrimination and Spatial Orientation, Visual-Motor Co-ordination, Visual Memory, Figure and Ground, and Visualization. These filmstrips formed the basis of the Group II intervention and were also done by Group I. As in all the intervention tasks, verbalization was encouraged. One of the filmstrips (Figure and Ground) will be described below.

Each filmstrip consists of approximately 36 frames, graded in difficulty, and building on concepts learned in previous ones. This is fourth in the series and is designed around the conjunctive forms “only in”, “and in” and “but not in”. One frame and the accompanying questions, from near the end of the filmstrip, are shown below. The filmstrips were shown to groups of three or four, and the questions were asked verbally. The children were



4. Teaching conjunctive skills through filmstrips: Which dot or dots are in the square and the circle but not in the triangle? Which dot is in the triangle but not in the circle or square? Which dot is in the square and triangle but not in the circle?



required to respond verbally or, in certain circumstances, by raising colored blocks.

### *Results of Intervention Program*

Upon completion of the intervention program, the groups were again given the baseline tests. The post-test results were compared by computing analyses of variance and covariance. The results from the analyses of covariance, showing the improvement of the experimental subjects, are displayed in Table 2. The results of the analyses of variance, showing absolute gains, are not presented here, but in general the experimental subjects showed greater improvement both in magnitude and in the number of significant improvements than the control subjects. As can be seen, there was no differential improvement on the WISC scores, but all measures of serial and free recall improved significantly. Surprisingly, although reading training was not specifically included in the program, the Schonell performance improved significantly. This was attributed to an improvement in word attack skills, which is dependent upon the serial strategies which were involved in remediation. Improvement in Progressive Matrices is not observable directly as percentile scores are confounded with age, but it was noticed that now more than two-thirds of the scores were above the fiftieth percentile. This could be attributed to the attention visual designs received in the remedial tasks. On the basis of these results, it was concluded that the remediation was successful in improving the performance of these children, particularly in those tasks which involve successive integration.

Das (1973b) has shown that three factors labeled Successive, Simultaneous and Speed emerge consistently in factor analyses using these same test measures. For this reason, although the sample was recognized to

TABLE 2  
ANALYSIS OF VARIANCE WITH COVARIANCE ADJUSTMENT (PRE-POST)  
BETWEEN GROUPS I and II

Test	F-ratio	p
WISC Verbal	0.00	NS
Performance	0.39	NS
Full Scale	0.00	NS
Progressive Matrices	0.09	NS
Schonell	11.74*	.002
VSTM Serial Position Recall	6.00*	.020
Free Recall	6.20*	.018
Cross-modal Coding	2.69	NS
Figure Copying	3.14	.085
Serial Learning		
Serial Position Recall	15.83*	.001
Free Recall	21.12*	.001

\* significant improvement in performance

NS = nonsignificant

be small, a factor analysis on the pre- and post-intervention scores was performed. The results can be seen in Tables 3 and 4.

TABLE 3  
ROTATED FACTORS (VARIMAX) FOR 10 COGNITIVE TESTS BEFORE  
INTERVENTION: CANADIAN NATIVE CHILDREN (N=40)

Variable	I Successive	II Speed	III Simultaneous
WISC Verbal	479	639	-029
Performance	431	574	235
Progressive Matrices	678	-047	458
Figure Copying	330	-165	743
Memory for Designs	074	-287	-801
Stroop Word Reading	-056	-717	112
Visual STM	065	707	435
Cross-modal Coding	584	037	162
Serial Recall	840	287	-066
Free Recall	787	352	000
% Variance	26.62	20.71	16.92

Note: Decimals of factor loadings omitted

For factor I, the two highest loadings were for serial and free recall. These indicate a successive processing factor. Factor II had Stroop Word reading speed as the highest loading and was termed the Speed or “Personal Tempo” factor. In factor III, the high loadings were for the Memory for Designs and Figure Copying tests; it was termed the Simultaneous factor.

Factor I, besides the serial and free recall, also included Cross-modal Coding and Progressive Matrices. The CMC, although sometimes considered a speed task (Das, 1973b), clearly has a serial element also and the results here indicate it was processed in much the same manner as other auditory stimuli (words).

Factor II includes not only the Stroop Word reading speed, but also VSTM and, to a lower degree, the WISC Verbal and Performance scores. Visual Short-term Memory certainly could have a speed component, and it seems that the variation in performance was determined by the ability to process information rapidly. Speed is perhaps a critical factor in short-term memory, as the memory trace may disappear before the correct response is recognized. This may be true also for the WISC items. Perhaps the Hobbema children “take their time” in verbal tasks and thus performance in these tasks is determined by speed rather than simultaneous or successive factors.

Factor III has its highest loading of FCT and MFD. These are both highly spatial tasks. The intermediate loadings of Progressive Matrices and VSTM suggest these tasks are processed only partially by a simultaneous strategy.

In the factor analysis based on post-intervention scores, the factors

TABLE 4  
ROTATED FACTORS (VARIMAX) FOR 10 COGNITIVE TESTS FOLLOWING  
INTERVENTION: CANADIAN NATIVE CHILDREN (N=40)

Variable	I Successive	II Simultaneous	III Speed
WISC Verbal	347	364	665
Performance	515	391	547
Progressive Matrices	253	544	276
Figure Copying	-034	848	-227
Memory for Designs	-232	-720	-110
Stroop Word Reading	036	136	-833
Visual STM	401	499	303
Cross-modal Coding	749	-062	252
Serial Recall	881	317	026
Free Recall	892	293	022
% Variance	27.98	22.77	17.32

Note: Decimals of factor loadings omitted

emerged in a different order. The serial factor continued to account for the most variation, but now the speed factor became less important than the simultaneous in accounting for the variance. In addition, the total commonality increased from 68 to 74 per cent, thus indicating more reliability. It seems probable that the remediation treatment reduced the gap between potential and performance for some children.

The following important shifts in the factor loadings were noticed. The Progressive Matrices now loads most highly on the simultaneous factor. This seems to be in greater accord with the nature of the test. It should be noted that this was accompanied by an improvement in the total scores on Progressive Matrices.

The VSTM now loads more appropriately on the serial and simultaneous factors rather than on speed and simultaneous. It seems that the introduction of consistent search and recall strategies has eliminated speed as a limiting variable. Again, the shift was accompanied by an improvement in performance in visual short-term memory.

On the other hand, although scores for the serial and free recall tests showed highly significant improvement, the factor loadings did not shift. This also is expected; these have been found to be the marker tests for the successive factor.

The results of the factor analyses on post-intervention scores thus support the emergence of simultaneous, successive and speed factors, describing the performance of subjects in the present test battery. The effect of intervention was to increase the reliability of the subjects' performance, so that the factor structure is comparable to that obtained in previous studies on Caucasian school children.

The covariance analysis has shown that two main areas of cognition improved: visual and auditory short-term memory. It was felt that the main



agent of improvement was the concentration on sequential strategies in the remediation program.

The children participating in this study proved to have well-developed simultaneous strategies, but these were often used in place of the more efficient sequential processes, particularly in tasks requiring visual search and ordering. It was clear from observing the performance of children that order was not important. However, most academic tasks demand specific sequential operations and this seems to be the area of difficulty for Indian children.

This study served to demonstrate that when appropriate remedial programs are used, cognitive strategies can be taught. However, it remains to be demonstrated how long the new strategies last and how far these will be carried over to the academic tasks.

Results of the factor analyses reinforced the impression that the new strategies were more appropriate, as the shifts in the factor loadings following intervention were accompanied by significant improvements in task performance requiring successive processing.

Generally, the intervention tasks were based on easily obtainable materials and were not complicated. The main innovations were in the ways materials were used. We suggest that any intervention program need not be content-specific, but it should have a sound theoretical structure. This has the obvious advantage of being easily incorporated into a teaching structure.

As a footnote, one could add that intervention programs have come under some criticism in recent years (Cole & Bruner, 1971; Baratz & Baratz, 1970). The main objection has been that intervention programs accept the "deficit" hypothesis rather than the "difference" hypothesis in the relationships of cultures to one another. The deficit is seen only when the group is compared to idealized American norms of behavior (Baratz & Baratz, 1970). This would certainly be true if the groups did not interact or compete with each other. However, if the child is expected to develop his full potential in the context of the major society, he must acquire the skills to do so (Das, 1973a). Poor or inefficient strategies, whatever their source, must be corrected in order that this end be achieved.

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<sup>1</sup> All tests except the WISC and Schonell have been described previously (Das, 1972b). They have been classified as representing the three factors of simultaneous and successive information integration, and the speed of integration.

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## Science Concepts in Semantic Space— A Multidimensional Scaling Study

*The present study, using 100 subjects, was a cross-sectional investigation of the development of semantic space for the domain of classical mechanics, covering the whole period in which physics is taught at school and university. Data on the semantic proximity of mechanics concepts, obtained by means of a continued word association test, were analysed by individual difference multidimensional scaling, which permitted the mapping of semantic space for individual subjects. Substantial retest stability of group average semantic structures was found, although individual differences in semantic structure were somewhat unstable. (Dr. Preece is Lecturer in Education at the University of Exeter.)*

In a discussion of the development of word meaning, Evanechko, Armstrong, and McFetridge (1974) have argued that the semantic organization underlying an individual's verbal behavior might comprise a Euclidean multidimensional semantic space in which the dimensions, representing the ways in which word meanings could vary, might be identified with orienting reactions acquired by the individual. The technique of multidimensional scaling (MDS) immediately suggests itself as an aid to operationalizing this model, and in the present investigation this instrument was used in an attempt to construct individual semantic spaces in one semantic domain. The domain chosen was classical mechanics, both because of its central importance in learning science and because mechanics concepts have been the subject of some earlier work on semantic space.

The object of MDS is to represent the structure in matrices of proximity data—in this case, interconcept proximities—in a spatial model of as few dimensions as possible, the interconcept distances in semantic space being related, linearly in metric MDS or monotonically in nonmetric versions, to the original interconcept proximities. Johnson, Cox, and Curran (1970), in a pioneering application of MDS to the semantic relations among six mechanics concepts, used two methods for obtaining proximity data. Fifty college physics students provided similarity ratings for all possible concept



pairs and also gave one minute of continued word associations to each concept word. The mean rating judgment and the mean proportion of associations common to each pair of concept words provided proximity measures for Kruskal's (1964) MDS procedure. Similar configurations of concepts in three-dimensional semantic space were obtained for the two sets of proximity data, and the configurations were shown to be closely related to a logical model of the conceptual structure. This study was severely limited, however, because it only yielded a group average semantic space and did not take into account individual differences.

In order to investigate individual differences, Kass (1971) used a method developed by Tucker and Messick (1963) to identify individual viewpoints in MDS. In this study, the proximity data were obtained from 353 grade 12 physics students who rated all paired combinations of 20 mechanics concepts for differences in difficulty. All subjects, however, seemed to construe the conceptual relations in essentially the same way and the investigation was only able to yield a group average space. Four or five dimensions were required for a fair fit (Kruskal, 1964), the first dimension separating dynamics from statics concepts and the second dimension separating vector and scalar quantities. The remaining dimensions were not clearly defined, but a *force-work-power* cluster appeared on one remaining dimension.

Shavelson (1972) attempted to trace the effects of learning mechanics on semantic space by giving 28 high school students a continued word association test, with 14 mechanics concept words as stimuli, as a pretest and after each of five consecutive days of instruction. A measure of the overlap between the individual response hierarchies to two concept words provided an index of proximity, and median proximities were calculated for each concept pair and subjected to Kruskal's MDS procedure. Two-dimensional solutions were found to match the data quite well, but they did not reveal any effects of instruction. Four main concept clusters emerged in each solution (and in the solutions for a control group of 12 students). Cluster 1 included the concepts *force*, *work*, *power*, and *energy*; cluster 2 included *mass* and *weight*; cluster 3 included *distance* and *time*; and cluster 4 included *velocity*, *speed*, and *acceleration*.

The present investigation attempted to provide some information on two problems raised by the work noted above. Firstly, it attempted to measure individual differences in semantic space and their stability; and secondly, it attempted to trace changes in semantic space during the period in which physics is learned. Carroll and Chang's (1970) procedure for individual differences multidimensional scaling (INDSCAL) was used to tackle the first aim, and a cross-sectional approach covering the whole period during which physics is studied at school and university was used to tackle the second aim.

### Method

#### Subjects

As one aim of the investigation was to trace developments in semantic space for those learning physics, throughout the period of instruction from school to university, and as university physics students are mostly male and from selective academic secondary schools (grammar schools), the school

subjects were chosen from a boys' grammar school. Groups of 20 students studying physics in the first form, fourth form, and seventh form were tested. The mean ages of the students in each group were 12 years 3 months for the first-form group (A), 15 years 4 months for the fourth-form group (B), and 18 years 2 months for the seventh-form group (C). In addition, two groups of university graduates were tested. The science graduate group (D) consisted of 15 men and 5 women, mean age 23 years 6 months, taking courses for prospective physics teachers at two universities. The nonscience graduate group (E) consisted of 10 men and 10 women, mean age 23 years 0 months, also taking a university course for prospective teachers.

### *Procedure*

The word association method of obtaining proximity data was used. All subjects took a word association test which required one minute of continued associations to each of the 15 mechanics concept words shown in Table 1. Details of the test and of the procedure have been given elsewhere (Preece, 1976a). In order to investigate the stability of configurations in semantic space, Groups A, B, and C were retested after an interval of a few weeks, the interval coinciding with vacations so that no instruction took place between tests.

TABLE 1  
THE FIFTEEN MECHANICS CONCEPTS

Concept	Symbol	Concept	Symbol
Distance	L	Acceleration	a
Area	A	Force	F
Volume	V	Weight	G
Mass	m	Pressure	P
Density	d	Work	W
Time	t	Energy	E
Speed	u	Power	P
Velocity	v		

### *Results*

A half-matrix of overlap coefficients, giving the overlap between every pair of response hierarchies, was calculated for each subject. Garskof and Houston's (1963) relatedness coefficient was used as a measure of overlap, with the parameter,  $p$ , given the value 1, which yielded a coefficient in which greater weight was given to earlier responses. These overlap coefficients were taken as individual measures of concept proximity and used as the input in separate INDSCAL analyses for each group.

The INDSCAL solution consists of a group space in which the concepts are located (a compromise based on the data for all subjects) and a subject space of the same number of dimensions in which each subject is represented by a point which gives the weight which each subject attaches to each dimension (i.e., subjects differentially expand or contract the group configuration in the direction of the axes). Solutions were obtained in four,

three, two, and one dimensions, although the following discussion is mostly confined to the two-dimensional solutions, which were readily interpretable and which were shown, in a number of trial runs, to be largely independent of the initial concept configuration adopted as the starting point for the iterative analysis.

Figure 1 shows the two-dimensional concept space for Group D (science graduates), the group most knowledgeable in physics. The concept space for Group C (seventh-form physics students who had studied mechanics in depth) was closely similar, providing some confirmation of this as the concept configuration in the semantic space of subjects knowledgeable in mechanics. For these two groups, dimension 1 separated the kinematics concepts *acceleration*, *velocity*, *speed*, *distance*, and *time* from the statics concepts *weight*, *mass*, *volume*, *density*, *area*, and *pressure*. The concepts *work*, *energy*, and *power* were placed between these polar clusters on dimension 1 and separated from them on dimension 2. It is a feature of INDSCAL solutions that the dimensions are always arranged in an order reflecting the amount of variance in the empirical matrices accounted for, with dimension 1 accounting for most variance, dimension 2 making the next largest contribution, etc. Thus the existence of this division between statics and kinematics concepts on dimension 1 showed that this distinction was the most important one made by these subjects. Finally, for Groups C and D, the concept *force* occupied an intermediate, central, position between the energy and statics clusters.

FIGURE 1  
TWO-DIMENSIONAL CONCEPT SPACE FOR GROUP D

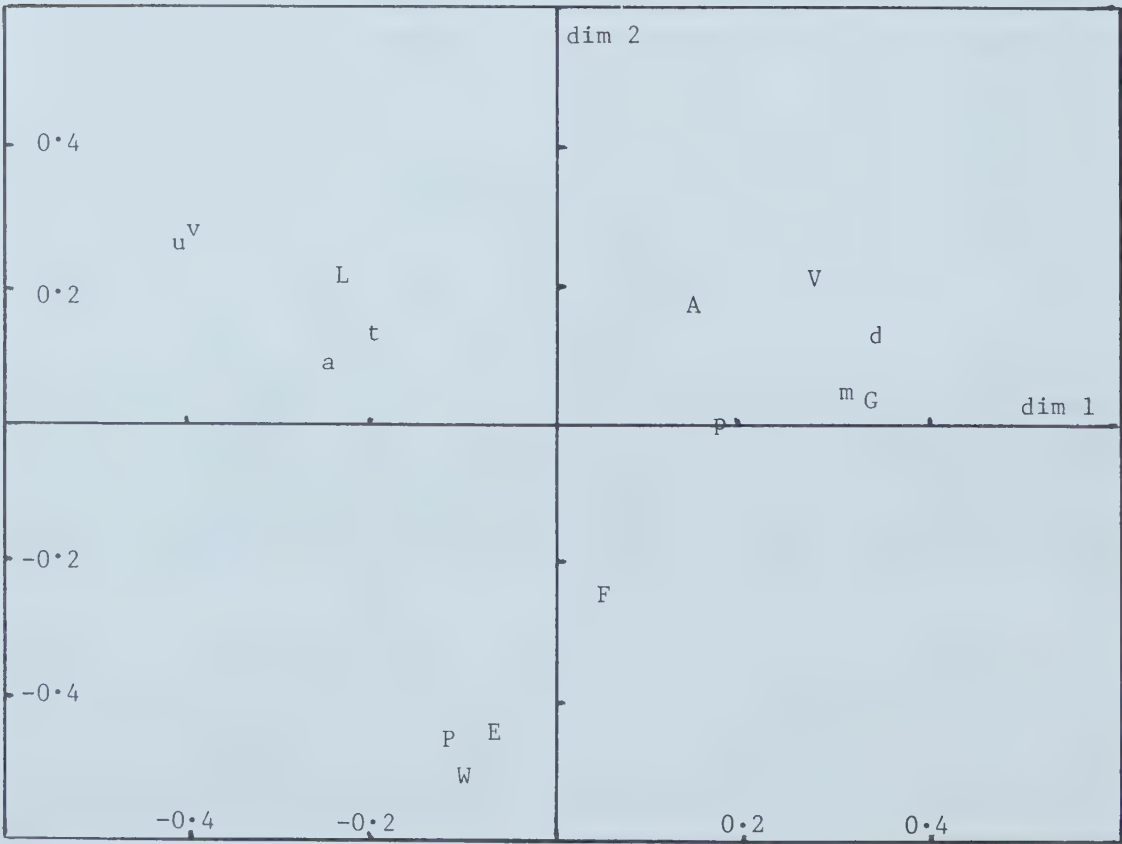
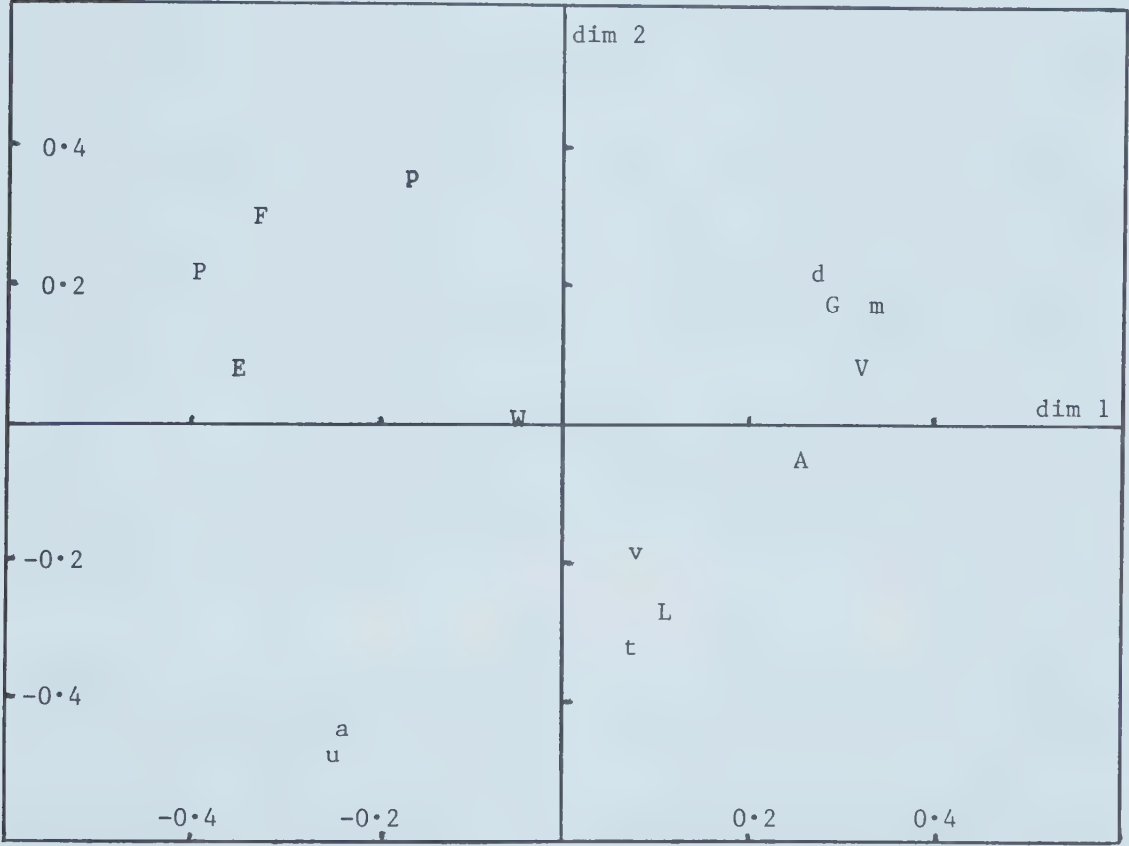




Figure 2 shows the two-dimensional concept space for Group A (first-form students) which was similar to that of Group E (nonscience graduates). For these groups, which contained the subjects with the least knowledge of mechanics, the concepts were less clearly clustered than for the other groups, although the same three groupings could be discerned. In both cases, the concept *work* was close to the origin and separated from the other concepts. In the two-dimensional concept space for Group B (fourth-form students), the concept *work* had entered the energy cluster, but the concept *force* was also in the energy cluster, as in Groups A and E, and it had not taken up the central position it had for Groups C and D. Thus Group B occupied an intermediate position between Groups A and C.

FIGURE 2  
TWO-DIMENSIONAL CONCEPT SPACE FOR GROUP A



For the three groups retested (A, B, and C), the test and retest concept spaces were closely similar, demonstrating the stabilities of the group semantic structures. This stability was simply quantified by calculating the test-retest correlations of the concept coordinates on each dimension of the two-dimensional group space. These stability coefficients for each group are given in Table 2.

This stability was not evident, however, on inspecting the subject weight spaces for the test and retest for these groups. Now, because of the way in which the subject space is normalised, the square of the distance of a subject point from the origin is roughly interpretable as the proportion of variance in that subject's data which is accounted for in the solution. Thus a point

TABLE 2  
STABILITY COEFFICIENTS FOR TWO-DIMENSIONAL GROUP CONCEPT SPACE

	Dimension 1	Dimension 2
Group A	0.87	0.83
Group B	0.98	0.98
Group C	0.94	0.92

coinciding with the origin of the subject weight space would indicate that the group configuration accounted for none of that subject's data. Conversely, a point located one unit distance from the origin would indicate that the group configuration (suitably adjusted by the weights attached to each dimension by that subject) accounted for all the subject's data. Thus the stability of a configuration in subject weight space can be simply indicated by the reliability of an index of conformity, giving the correlation between the solution and the original data, which is computed for each subject in the INDSCAL program. The test-retest reliabilities of this conformity index for the solutions in four, three, two, and one dimensions, for the three groups retested, are given in Table 3. The values of these reliability coefficients indicated some, but not substantial, stability of individual differences in the configuration of concepts in semantic space.

TABLE 3  
RELIABILITIES OF CONFORMITY INDEX

	4D	3D	2D	1D
Group A	0.41	0.37	0.52	0.36
Group B	0.09	0.17	0.23	0.71
Group C	0.52	0.56	0.41	0.25

The INDSCAL program also yields an overall correlation between each solution and the original data. To achieve a correlation of about 0.70, four dimensions were required for Group A, three dimensions for Group E, and two dimensions for Groups B, C, and D. This suggested that the subjects' semantic structures were less idiosyncratic, permitting more parsimonious solutions, in these latter groups.

*Discussion*

Considerable stability of group semantic structures was demonstrated, although individual differences in structure were somewhat unstable. This is, perhaps, to be expected considering the homogeneity of the groups, although the apparent instability of individual differences could reflect the unreliability of the measuring instrument. There are a number of techniques for measuring semantic proximity and there is a good deal of evidence of

their convergent validity as tools for mapping group semantic structure (Preece, 1976b). It would now be valuable to compare their efficacy in the exploration of individual semantic space. It should be noted, however, that alternatives to the spatial representation of semantic structures exist. Thus Preece (1976a) has suggested that a hierarchical network structure may be particularly appropriate in the domain of classical mechanics.

Although the group concept spaces of all the groups in the present investigation were dominated by three concept groupings—the kinematics, statics, and energy clusters—there was clear evidence of semantic development on going from the least to the most knowledgeable groups. For the least knowledgeable groups (A and E), the clusters were less tightly organized and the concept *work* had not entered the energy cluster, perhaps reflecting the dominance of the everyday meaning of that word for those groups. For the intermediate group (B), the concept *work* had entered the energy cluster, but it was not until the most knowledgeable groups (C and D) that the concept *force* had left the energy cluster to take up a position reflecting its central role in mechanics.

The importance for studies of progress in learning of tracing the development of semantic structures in this way and of elucidating the differences between the structures of experts and neophytes has been discussed by Michon (1972), and Fenker (1975) has provided direct evidence that students whose “cognitive maps” match those of experts achieve better course grades than students without appropriate maps. Moreover, Fenker noted that mapping the semantic structures of individual students is necessary in studying meaningful learning, which is characterized by the incorporation of new material into existing cognitive structures (Ausubel, 1963). Indeed, it is the key role of an individual’s cognitive structure in the learning process, so forcefully stressed by Ausubel, that makes the development of reliable techniques for mapping the semantic space of individuals so important.

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## Problems of Control in Nonexperimental Educational Research

*The use of analysis of covariance and other techniques to control nuisance variables in educational research is a common strategy. In the present paper, an attempt is made to show that these procedures may introduce more problems than they solve. It is suggested that describing the situation as it exists in its complexity may be preferable to trying to control nuisance variables statistically. (Dr. Maguire is with the Division of Educational Research Services, Faculty of Education, The University of Alberta; Dr. Haig is with the Department of Education, Canterbury University)*

Each year throughout North America, graduate students in education are exposed to the mysteries of the design and analysis of educational experiments. Using the now classic treatise of Campbell and Stanley (1963), they learn that many of the sources of invalidity that cloud the investigation of relationships among educational variables can be controlled through the use of "True Experiments." They learn that, in the basic true experiment, subjects are randomly assigned to groups, the groups are treated differentially, and observations are made to determine the effects of the treatment. The magic potion that controls the "nuisance" variables is random assignment.

In spite of the validity of the claims made for the use of true experiments in educational research, by far the bulk of educational research is not truly experimental. Campbell and Stanley's pre- and quasi-experiments, the ex post facto experiments of Chapin (1955), case, correlational, and field studies, and clinical methods are common (but not mutually exclusive) examples of not truly experimental (NTE) research methods.

There are many reasons why NTE research flourishes. Often people cannot be randomly assigned to groups for ethical reasons, as for example in looking at differences in visual acuity between deaf and hearing children.

There may be administrative reasons that make random assignment impossible, as in a study of differences in teaching styles for teachers in rural and urban schools. Sometimes random assignment is impossible because the independent variable simply cannot be placed under the control of the research, as in a study of the effects of an economic recession on the quality of decisions made by school boards. Indeed, it is often true that the random assignment of subjects to groups produces such an artificial situation that it possesses no ecological validity in the Bracht and Glass (1969) sense. Occasionally, NTE research occurs as a result of poor planning or ineptitude on the part of the researcher. Regardless of the reasons for its use, one of the inevitable problems of NTE research is the confounding of nuisance variables with other variables.

Nuisance variables are variables that interfere with the relationships among the principal variables under study. In the simplest case they inject alternate possibilities for causal statements relating independent and dependent variables. Campbell and Stanley's sources of internal invalidity are examples of nuisance variables, in that they provide alternate explanations for differences that are observed. Other variables are identified as nuisance variables only within the context of a particular experiment. For example, Anderson (1971), in a study to determine the effects of course content and teacher sex on classroom climate, treated class size, girl/boy ratio, and class mean IQ as nuisance variables. Wessman (1972) treated IQ, age, and race as nuisance variables in a study of the effectiveness of a compensatory education program. Aiken (1972) described several studies relating language factors to learning in mathematics. Among the nuisance variables that occurred were initial mathematics ability, IQ, and computational ability.

That the confounding of nuisance variables in the relationship between independent and dependent variables is regarded as an important problem in educational research is well documented by the advice provided by reviewers and integrators of research in various areas. St. John (1970), for example, stated, "If school quality and family background are positively related to the achievement of minority pupils and to their schools' racial composition, it is crucial to control them in any study of the influence of ethnic composition (and school performance)" (p. 113). Welch (1969), after looking at several evaluation designs for mathematics curriculum studies and finding a preponderance of uncontrolled studies, suggested that analysis of covariance is one of the many techniques that curriculum evaluators can use to improve their investigations. Kerlinger (1967) too, noted that "The necessity of controlling extraneous independent variables is particularly urgent in field experiments . . ." (p. 383).

There are three procedures that have been prescribed for problems of confounded nuisance variables in NTE research: matching, partial correlation, and analysis of covariance. Basically, they all attempt to answer the same question: if the nuisance variables were controlled, what would be the relationship between the independent and dependent variables?

Meehl (1970) suggested that the solutions proposed for controlling nuisance variables might be worse than the problem itself. As an example, he described a hypothetical study in which the incomes of high school



graduates and dropouts are compared. If the graduates have higher incomes, it could be argued that this results from differences in IQ. To overcome this, graduates could be matched pairwise on the basis of IQ, and if a difference still exists in income, it might be said that the difference is not attributable to IQ. However, if we look carefully at a dropout matched with a graduate at IQ 125, we would have to admit that they are qualitatively different kinds of people. A dropout at that level likely has a lower conventional achievement need than the graduate. Considering the match at IQ 90, we would surely admit that the graduate has a very high achievement need. Meehl suggests that what we have done by matching an IQ is to make the groups unmatched on achievement need.

Although matching is used in the example, the consequences are no different when either partial correlation or analysis of covariance is used. In the present paper, the aim of the authors is to discourage researchers from using such techniques to eliminate nuisance variables. When the techniques are used in NTE research, they should be used with the intention of explicating the complex relationships that exist.

### *Some Consequences of Controlling Nuisance Variables*

In educational research, the most common method of eliminating nuisance variables is through the use of analysis of covariance. Bay and Hakstian (1972) have shown that in the case of two treatments, the significant test for the analysis of covariance is algebraically equivalent to the significance test for the partial point biserial, i.e., the correlation between the treatment (expressed as a dichotomous variable) and dependent variable with the control variable partialled out. With this in mind, it is easiest to look at the problem from the simple vantage point of partial correlations, knowing that the comments apply equally to other correction methods.

Some of the areas to be considered have been discussed by Elashoff (1969) and by Evans and Anastasio (1968). Problems associated with unreliability of measurement and violations of assumptions have been set out by Lord (1963) and Glass, Peckham and Saunders (1972) and will not be reiterated here.

It is the central point of this paper that when attempts are made to partial out the effects of nuisance variables for the purpose of obtaining a clearer picture of the causal relationship between two variables of interest, the result is to change the nomological network in which the two variables lie. In short, one changes the constructs themselves.

To understand what happens when we partial the effects of a variable out of the relationship between two other variables, we must recall that the partial correlation is merely the correlation between two residuals. Suppose that  $X_1$  and  $X_2$  are two variables of interest.  $X_3$  is a nuisance variable. Using simple regression techniques, we could predict  $X_1$  and  $X_2$  from  $X_3$  as follows:

$$\begin{aligned}\hat{X}_1 &= b_{13} X_3 + a \\ \hat{X}_2 &= b_{23} X_3 + c\end{aligned}$$

If  $e_1 = X_1 - \hat{X}_1$  and  $e_2 = X_2 - \hat{X}_2$ , then the correlation between  $e_1$  and  $e_2$  is the partial correlation  $r_{12.3}$ .

A second kind of correlation that is of interest is the part correlation. If we had a variable  $X_4$  and correlated it with  $e_1$ , then the result would be a part correlation, i.e., the correlation between variable 4 and that part of variable 1 which is uncorrelated with variable 3. The expression for a part correlation is shown below.

$$r_{(1.3)4} = \frac{r_{14} - r_{13}r_{34}}{\sqrt{1 - r_{13}^2}}$$

It is Meehl's argument that when you calculate the partial correlation between two variables of interest, you tend to make  $r_{(1.3)4}$  greater than  $r_{14}$ , that is, you tend to *increase* the relationship between the independent variable and some outside variable. It is the contention of the present authors that this is the undesirable manifestation of the more general circumstance, that you have in effect changed the definition of the independent variable.

If we consider the formula for the part correlation, we can see how this happens:

Variable 1 is one of the variables of interest (perhaps the independent variable). Variable 2 is the other variable of interest.

Variable 3 is the nuisance or *control* variable that is identified by the investigator for control.

Variable 4 is an outside variable that is not considered in the experiment.

Most often  $r_{13}$  is a reasonably large correlation, since it is a nuisance variable of sufficient degree to have attracted attention. The expression  $\sqrt{1 - r_{13}^2}$  will be less than one, and the larger  $r_{13}$  is, the smaller  $\sqrt{1 - r_{13}^2}$  will be. Thus the denominator of the expression for the part correlation will have the effect of "magnifying" the numerator.

It might be argued that any outside variable that is correlated as much as .4 with the independent variable would itself be identified as a nuisance variable, and steps could be taken to control for it. On the other hand, if the correlation between the outside variable and the control variable is near zero, and the correlation between the independent variable and the outside variable is near zero, then there is no problem, because the numerator of the expression is zero, and no amount of magnification by  $\sqrt{1 - r_{13}^2}$  can change that.

The more serious problem arises when  $r_{14}$  is very near zero, and  $r_{34}$  is magnified by

$$\frac{r_{13}}{\sqrt{1 - r_{13}^2}}$$

When  $r_{14}$  is near zero, it will almost surely be overlooked in the theory that binds variables 1, 2 and 3. However, if  $r_{34}$  is very large, then variable 4 will be dragged to our attention on the coattails of variable 3. The area in question occurs when  $r_{14}$  lies in the interval from -.2 to +.2, and  $r_{34}$  is fairly small, say less than .4 in absolute value.

A recent article by Barik and Swain (1976) provides an example of a situation in which the problem could arise. As a part of a larger study, a group of Grade 1 students participated in a French immersion program for two years (kindergarten and grade 1). Their achievement after two years



was compared with that of a similar group of children who were comparable on age and socioeconomic background. Among the several achievement variables measured was the arithmetic subtest of the Metropolitan Achievement Tests. At the end of grade one, the mean arithmetic score for the immersion group was significantly higher than that of the control group. It was noted that the groups showed significant differences on Deviation IQ(DIQ) as measured by the Otis-Lennon. Both measures were taken at the end of grade 1. The authors used DIQ and age as covariates and found that there were no significant differences between the adjusted arithmetic means. The thrust of the conclusion was that the immersion program did not appear to produce any deficit in arithmetic. Although the present authors would question the use of the DIQ measured at the end of grade as a covariate (since it could partial out differences that are legitimate treatment differences), we have no quarrel with the conclusions of the study.

If we assume that the inclusion of age in the analysis of covariance is of little consequence, it is possible to deduce the following correlation matrix from the results included in the Barik and Swain article. This assumption is plausible since the average ages of the curriculum groups are almost identical, and the narrow range of age usually encountered in the first grade is so small that the age-DIQ correlation will be very small.

	Curriculum	Arithmetic	DIQ
Curriculum	1.00		
Arithmetic	.345	1.00	
DIQ	.360	.527	1.00

The curriculum variable is made by assigning a score of 1 to all in the immersion program, and a 0 to those in the comparison group. The correlation between curriculum and achievement with DIQ partialled out is .20. Thus controlling for DIQ had the effect of reducing the correlation with achievement from .345 to .20.

To illustrate what could happen when the groups were equated on DIQ, we can append some *hypothetical* results to the Barik and Swain data. In many classrooms there is a small but negative correlation between the amount of attention that is given to a student and the achievement level of the student (see for example Macdonald, 1972). In addition, we could assume for the sake of argument that there is a small but negative correlation between DIQ and teacher attention, with the less intelligent students receiving slightly more teacher attention than their more intelligent classmates. If we suppose that in the Barik and Swain study, the teachers in the immersion group gave slightly more attention than those in the comparison group, then the following correlations may have resulted:

	Curriculum	Arithmetic	DIQ
Teacher Attention	.20	-.20	-.30

The correlation between teacher attention and curriculum with DIQ partialled out is .35. By partialing out the effect of DIQ, we have increased the correlation between teacher attention and curriculum from .2 to .35. This means that we have made the groups as different on the outside variable as they were on the covariate before the correction was made.



In a sense, we have redefined the "Curriculum" variable to become "Curriculum with DIQ partialled out", and statements of relationships which apply to the latter variable need not apply to the former. Consequently, efforts to clarify the role of "Curriculum" by controlling nuisance variables may have the effect of producing new nuisance variables. The frustrating aspect of this problem is that the researcher is almost never aware of what the new nuisance variables are.

### *Some Side Issues*

In passing, one might ask if the use of analysis of covariance to improve power in a true experiment has the effect of producing a systematic difference in randomly equivalent groups. The answer is no—as can be seen in the two group case.

Let  $X$  be the treatment variable scored 1, 0,  $Y$  be the dependent variable, for example, achievement,  $Z$  be the covariate, IQ, and  $W$  be an outside variable such as motivation. Over the long run, the expected value of  $r_{xz}$  is zero because people are randomly assigned to groups, and the covariate is measured before the treatment. Thus,

$$r_{xy.z} = \frac{r_{xy}}{\sqrt{1 - r_{yz}^2}}$$

and so the power is increased. But what happens to the partial correlation  $r_{xw.z}$ ? To begin with, because of the random assignment of people to groups,  $r_{xw}$  should be zero in the long run. That being the case, the partial correlation turns out to be

$$r_{xw.z} = \frac{0 - 0 \times r_{wz}}{1 \sqrt{1 - r_{wz}^2}} = 0$$

Consequently, in the true experimental case, there is no expected mismatch on the outside variable arising from the use of a control variable.

It is also of interest to see if the problems that arise in NTE designs and the use of analysis of covariance also arise in the use of analysis of variance in the NTE design. For example, suppose there is a two-curriculum study, in which groups are not randomly assigned to treatments. If we think that intelligence has a possible effect, we might try to control it by using it as a factor in a treatment-by-IQ analysis of variance. We can do this in two ways. In the first way, we might dichotomize (or use any number of levels) IQ by cutting below and above 110. If IQ is a reasonable cause for the observed difference in the dependent variable (at this rather gross level), then we will find that there are disproportionate numbers in the cells of the two-way design. If we analyse the data using least squares procedures for the unequal  $n$  ANOVA, then the problems described earlier will occur, since the analysis is no different in principle than using analysis of covariance with IQ levels and IQ by treatment interaction as covariates. And since IQ and treatment are correlated, the correlation could serve to increase the correlation between the "adjusted" treatment variable and some outside variable.

If on the other hand, after we make our groups on IQ, we randomly throw out subjects to make the cell sizes equal, then we make the correlation

between the independent variable and the nuisance variables zero. So that  $r_{(1.3)4} = r_{14}$ . The same situation holds true in any two-way design in which we have equal cell sizes, and subjects not assigned at random.

Of course in most two factor NTE designs, the factors are chosen because of the possible relationship to the dependent variable, and not because of their relationship to each other.

### *Discussion*

In the past, design experts have often been able to supply pat remedies to problems that are raised. Complexity of numerical methods has usually outstripped advances in design methodology, and so new procedures could be prescribed to overcome the inadequacies of the old ones. In the present circumstances, however, the problems are not so easily solved. According to Cronbach and Meehl (1955) a construct derives its meaning from the network of relationships that connect it with other constructs and with observables. When we partial out or control the effects of nuisance variables, we change the nomological network in which the variables of interest are embedded. Or, put another way, the relationships among residual variables are simply not the same as the relationships among the original variables. We cannot interpret the residual variables as if they had the same construct status as the original variables.

As Meehl notes, when we try to investigate the relationship between naturally occurring characteristics by controlling for some nuisance variable, we are almost inevitably led to the assertion of a counterfactual conditional statement such as "If dropouts and graduates had the same average IQ, they would earn different salaries." Traditionally, researchers have acted as though the counterfactual premise (if dropouts and graduates had the same average IQ) could be true in isolation from all other variables. We have seen that this is not true. When we correct for IQ, we change the outside relationships. Additionally, Meehl argues that the implicit assumption does not make common sense. A society in which dropouts and graduates have the same average IQ may have such different sociological mechanisms operating that the dynamics underlying income, IQ and schooling would be radically different. For example, in the late fifties the difference in average IQ between college graduates and dropouts may have been larger than it was in the late sixties. Yet partialling out IQ in 1958 would not likely have given rise to images of the social environment of the sixties.

Perhaps the most useful way to deal with the problem of interpreting NTE research is to live with the nuisance variables and incorporate them into our models of behavior. By doing this, we construct models to fit the world, rather than constructing worlds to fit our models. In classroom research and evaluation, if naturally occurring characteristics confound each other, it does not make sense on either scientific or pragmatic grounds to try to isolate effects of individual variables. The nature of the domain in which we work is complex and interactive; our models and procedures must reflect this. Too often we have tried to overcome simplistic observation with complex analyses. It makes more sense to take more observations across time in an attempt to capture the interweaving of variables. At the present



stage of sophistication, reliable description of changing relationships will lead us further than touched-up cross-sectional snapshots.

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## Effects of Data Classification on Mind Set of Grade Six Students

*The study's purpose was to research the purported effects of reduction of "mind set" and achievement of greater consistency in data classification when using Simon's Problem-Solving Approach. The presence of "mind set" relating to the desirability, feasibility of further controlling water pollution in Canada was identified in a pretest administered to 248 grade six students in four schools. Within each school, four random groups were formed and a posttest, consisting of an article which pointed to the undesirability and infeasibility of further controlling water pollution, was administered. Group 1 read the article; group 2 classified the data with feasibility criteria specified. Group 3 was given desirability criteria also, and group 4 was trained in classification procedures. Trained subjects scored significantly more correct classifications than did untrained subjects ( $p \leq .05$ ) and achieved more correct conclusions ( $p \leq .05$ ) indicating that "mind set" could be partially reduced through the classification procedures. (Dr. Wright is Assistant Professor of Social Studies Education at the University of British Columbia; Dr. Simon is Professor in the Department of Curriculum and Instruction, Faculty of Education, The University of Calgary.)*

As a result of the past decade of ferment in the Social Studies, teaching in this subject area has moved beyond the emphasis on facts and the transmission of the cultural heritage. The literature on the teaching of Social Studies now stresses student examination and evaluation of social problems. Consistent with this view, the Alberta Social Studies program (Department of Education, 1971) quotes Price: "We cannot teach children to engage in inquiry and discovery and have them refrain from pushing their questioning to the point of asking what ought to be" (p. 23).

In order to research "what ought to be" or "should" questions, a particular problem solving procedure seems necessary. Such a method has been developed by Simon (1970) and it is this "Reconstructive Approach"

which is recommended by the Alberta Social Studies Program (Department of Education, 1971, p. 12) for use in Alberta schools. This model has several unique features. The investigation relies on a hypothesis as to the desirability and feasibility of taking action on a policy making "should" question which is of immediate concern to students. Testing the hypothesis requires the use of a representative sample of data pertinent to the problem, and the classification of purported evidence into desirable (D) and undesirable (UD) as well as feasible (F) and infeasible (IF) categories. The "survival" goal (human and ecological survival and the physical and psychological well-being of individuals) is used as the criterion for classifying purported evidence into the D and UD categories. Criteria for classifying purported evidence into the F and IF categories include cost, legality, available time, past successes/failures, public and private attitudes, technology, existing relevant policies, and the availability of human resources, social processes and structures.

The actual sequence of the Simon model is as follows:

1. Identifying and clarifying a "should" question.
2. Formulating a hypothesis on the desirability and feasibility of taking action on the problem.
3. Collecting a representative sample of data.
4. Classifying the data into Desirable/Undesirable, and Feasible/Infeasible categories.
5. Analyzing the data.
6. Evaluating (testing) the hypothesis on the desirability and feasibility of taking action on the problem.
7. Proposing a course of action on the problem. (This may lead to overt group or individual action.)

The major question examined in this study, however, relates to a purported effect of using the classification scheme in the inquiry model. Simon (1970) states, "Systematic classification reduces the effects of the student's mind set . . . when he analyses his data" (p. 41).

A survey of the available related literature revealed that, although numerous techniques had been used by researchers to reduce "mind set," none had used any type of classification scheme. This study was therefore regarded to be both necessary and unique.

Principally, then, this study attempted to determine whether "mind set" could be reduced by the use of Simon's classification scheme. Specifically and in total, the study was designed to test the following hypothesis:

- H<sub>1</sub> That the use of the Simon classification procedure will reduce the effects of "mind set."
- H<sub>2</sub> That the use of the survival goal, as the criterion for classifying data into the D and UD categories will result in a significantly greater number of correct entries in these categories ( $p \leq .05$ ).
- H<sub>3</sub> That training in the relevant classification skills will result in a significantly higher number of correct entries in the assigned categories ( $p < .05$ ).
- H<sub>4</sub> That training in the relevant classification skills will result in a

significantly higher number of correct conclusions on the desirability and feasibility of action on the problem.

H<sub>5</sub> That among treatment groups there will be a significant difference on the conclusions reached on the desirability/undesirability and feasibility/infeasibility of action on the problem.

H<sub>6</sub> That the use of the classification procedure is feasible at the upper elementary school level.

### *The Research Design*

#### *Sample*

The entire Grade 6 population ( $n = 248$ ) from four schools considered to be representative of the elementary schools in Calgary Catholic School District No. 1 were utilized.

#### *Identification of a "mind set"*

A test was administered to identify the subject's attitude towards the desirability and feasibility of taking action to control water pollution in Canada. The relevant test item was "hidden" in the test by including questions on the desirability and feasibility of taking action on various other unrelated concerns. The test was expected to reveal whether a "mind set," viz., a "readiness of the individual to organize his perceptions and cognitions in a particular way" (Krech, Crutchfield & Bellachey, 1962, p. 67) was initially present and widespread throughout the sample.

The experiment itself was carried out twelve days later. This twelve-day period was deemed long enough to erode any possible contamination by the earlier test and short enough to prevent possible confounding by external events such as a major pollution disaster or the teaching of a unit on conservation or pollution. Neither of these events was seen to occur, however, during this period.

#### *The experimental instrument*

The instrument used in the experiment consisted of information taken from "Water Pollution and You" (Elliott, no date, p. 1) and "Environment News" (Alberta Department of the Environment, 1971, p. 9). Information was paraphrased to a grade 6 reading level as determined by readability formulas and by piloting of the instrument. This reading was then ascertained by a panel of judges to say that action to control water pollution in Canada was neither desirable nor feasible. Their decision was based on a close examination of each sentence in the instrument, and on an agreement on whether a sentence spoke for the desirability/undesirability, feasibility/infeasibility of action to control pollution, or whether a sentence was irrelevant. The judges consisted of five instructors and graduate students familiar with the use of the classification design.

#### *The design*

In the experimental situation, the subjects in each school were randomly assigned to one of four groups.

*Group 1.* This group received printed instructions to read the experimental instrument and to conclude on the weight of evidence as to whether or



not the evidence pointed to the desirability, undesirability, feasibility, or infeasibility of taking action on the problem.

*Group 2.* The group received the experimental instrument in the format below (see Figure 1) and it was explained in print how to classify the evidence. No criterion for classifying evidence in the D or UD categories was given. The subject made his own decision as to whether an item pointed to the desirability or undesirability of taking action on the problem. However, feasibility and infeasibility criteria were specified and the subject was asked to classify items in the F or IF categories according to the criteria of cost, legality, available time, past successes/failures, public and private attitudes, technology and the availability of human resources and social processes. For example, if purported evidence showed that industry could not afford pollution control, this demonstrated that it was infeasible to take action to control water pollution in Canada. This group then concluded on the desirability/undesirability and feasibility/ infeasibility of action on the problem.

FIGURE 1  
CLASSIFICATION DESIGN FOR GROUP 2

Statements	D	UD	F	IF
1. From kindergarten on up, Canadians of today know that this country's water supply is being polluted.				
Statements 2 to 14.				

*Groups 3 and 4.* These groups carried out the tasks assigned to Group 2. In addition, however, they received a description of the survival goal (human and ecological survival and the physical and psychological well-being of individuals) and were asked to use this criterion for classifying sentences into the D and UD categories. For example, if purported evidence showed that water pollution damaged the environment or adversely affected the well-being of people, this was classified in the D category, as it demonstrated that it was desirable to take action to control water pollution in Canada. For each statement the subject classified in these two categories, he was also required to answer the question, "Would survival be helped or hindered?" Then the subject concluded as to whether each classified statement stated or implied that it was D or UD to take action on the problem (Fig. 2). The directions for classifying items in the F and IF categories were the same as those for Group 2. For each item the subject classified into either the F or IF categories, he was asked to *state* whether the item stated or implied that it was F or IF to take action on the problem.

Group 4 received a forty-five minute training program conducted by the researcher immediately prior to the administration of the test instrument. During this time, subjects were trained in the application of the Simon classification procedure, using other than the experimental material. The "survival goal" was introduced and evidence classified according to this criterion. Then the feasibility criteria were presented and applied to practice

FIGURE 2  
CLASSIFICATION DESIGN FOR GROUPS 3 and 4

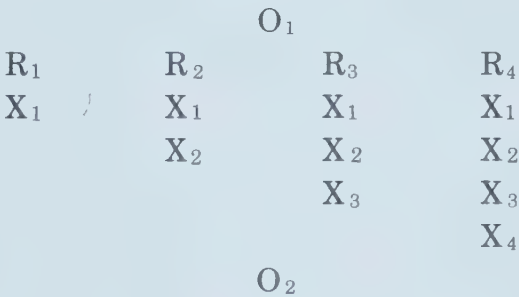
Should more action be taken to control water pollution in Canada?

Statements	D	UD	F	IF	Would survival be helped (1) or hindered (2)? Write 1 or 2 wherever a check mark appears in the D or UD column.	Is action D, UD, F or IF? Write D, UD, F, or IF.
Statements 1 to 14						

sentences. Finally, a practice exercise was given and Group 4 subjects classified each sentence into the D, UD, F, or IF categories, finally concluding on the weight or evidence as to the desirability/undesirability, feasibility/infeasibility of taking action on the stated problem.

Both the instrument to determine the presence of a “mind set” and the experimental test instrument were administered by classroom teachers who were instructed as to the procedures to be used.

Summary of the design



Where

- O<sub>1</sub> =observations from the instrument used to identify “mind set”
- O<sub>2</sub> =observations from the experimental instrument
- R<sub>1</sub>-R<sub>4</sub> = treatment groups
- X<sub>1</sub> =reading the experimental instrument
- X<sub>2</sub> =classifying the evidence in the experimental instrument into D, UD, F, and IF categories with criteria assigned for classification in the F and IF categories only.
- X<sub>3</sub> =classifying the evidence in the experimental instrument, with a criterion specified for classification in the D and UD categories.
- X<sub>4</sub> =training in classification procedures.

Analysis of data

A chi-square test for independent samples was used to ascertain whether or not significant differences (*p* = .05) existed between the four groups on the desirability and feasibility or taking action to control water pollution in Canada. The same test was used to ascertain whether conclusions reached from the experimental instrument differed significantly from responses on

the instrument used to determine the existence of "mind set." In order to ascertain whether or not groups differed in the number of correct classification responses on the experimental instrument, a three-way ANOVA was performed, with an a posteriori Scheffé test applied in order to discover where possible differences might be.

### *Results*

#### *Hypothesis 1*

This hypothesis stated that the use of the classification procedure would reduce the effects of "mind set." The hypothesis was supported in the D category ( $p = .001$ ) for Group 4. Only here was there a statistically significant difference between responses to the "mind set" instrument and conclusions reached on the experimental test instrument. This indicated that "mind set" in this instance was reduced through training in, and use of, the classification procedures. Despite initial attitudes that it was desirable to take action to control water pollution, these Group 4 subjects correctly concluded that the experimental instrument pointed to the undesirability of such action. However, in the feasibility category for all groups and in the desirability category for groups 1, 2, and 3, it would appear that the existing attitude that it was desirable and feasible to control water pollution prevailed in the interpretation of the experimental instrument. These subjects apparently read into the data what they wanted to see, rather than what was actually there, demonstrating the existence of a "mind set".

#### *Hypothesis 2*

This hypothesis stated that the use of the survival goal, as the criterion for classifying items in the D and UD categories, would result in a significantly greater number of correct responses in these two categories. This hypothesis was not supported by the data. Group 4 subjects, who were trained in the use of the survival goal, did not differ significantly in the number of correct classification responses in the D or UD categories from Group 3 subjects who were not trained. Neither did untrained Group 3 subjects who used the survival goal differ significantly from Group 2 subjects who did not use the survival goal.

#### *Hypothesis 3*

This hypothesis stated that training in classification skills on the experimental instrument would result in a significantly higher number of correct classification responses reached. The hypothesis was supported by the data. Training (Group 4) resulted in a significantly higher number of correctly classified items, correct classification being determined by a panel of expert judges.

#### *Hypothesis 4*

This hypothesis stated that training in classification skills would result in a significantly higher number of correct conclusions on the desirability/undesirability and feasibility/infeasibility of action on the problem. This hypothesis was supported (Table 1). Trained (Group 4) subjects arrived at a higher proportion of correct conclusions (on the



TABLE 1  
CHI-SQUARE PROBABILITY LEVELS ON DIFFERENCES BETWEEN GROUPS  
IN CONCLUSIONS REACHED

Conclusions	Groups	2	3	4
Desirability	1	$p=.3 < p < .5$	$p=.5 < p < .7$	$p=.001$
	2		$p=.5 < p < .7$	$p=.02$
	3			$p=.01$
	1, 2, and 3			$p=.001$
Feasibility	1	$p=.95 < p < .99$	$p=.5 < p < .7$	$p=.05$
	2		$p=.5 < p < .7$	$p=.05 < p < .1$
	3			$p=.05$
	1, 2, and 3			$p=.01$

desirability/undesirability and feasibility/infeasibility of taking action on the problem) than did untrained Groups 2 and 3.

#### *Hypothesis 5*

This hypothesis stated that among the groups there would be a significant difference on conclusions on the experimental instrument relating to the desirability/undesirability and feasibility/infeasibility of action on the problem. As can be seen in Table 1, Group 4 differed significantly from each of the other groups in the D conclusions, and from the other groups, combined, in the F conclusions. However, Groups 1, 2, and 3 did not differ significantly from each other. This hypothesis was therefore not generally supported.

#### *Hypothesis 6*

This tested the feasibility of using the classification procedure at the upper elementary school level. The hypothesis was tentatively supported, as it was demonstrated that even with forty-five minutes of training, trained subjects could score relatively high percentages (64%) in correct classification responses.

#### *Interpretation and discussion*

Analysis of the classification responses and conclusions reached revealed that many subjects failed to relate classification responses to conclusions. For example, 75 subjects, regardless of group, classified the experimental instrument evidence predominantly in the undesirable category and, in keeping with the evidence, should have concluded that the article pointed to the undesirability of taking action on the problem. However, only 22 subjects concluded in this manner. Why this is so can only be conjectured. Was "mind set" operating so that the evidence pointing to the undesirability of taking action was overlooked? Perhaps, too, subjects had problems in classification. For example, a statement such as ". . . this country's water supply is being polluted" has a negative undesirable message and yet, in relation to the problem, "Should more action be taken to control water

pollution in Canada?", this statement must be entered in the desirable category. This is so for the following reason: because the water is being polluted, it is desirable to take more action to control pollution. The frame of reference "shift" that is often required in order to classify data *in keeping with* the manner in which the problem is posed may have been a major difficulty, particularly for the untrained groups.

### Conclusions

The findings of this study suggest that (1) "mind set" can be reduced by the use of the Simon classification procedure, (2) the use of the procedure is feasible in Grade 6, and (3) training in the relevant classification skills is necessary for the classification procedure to have significant effect on "mind set." Some questions pertaining to the classification procedure remain as yet unanswered, requiring further study. Suggestions for further study include:

1. Replication of this study at the same and different grade levels using different social issues.
2. Attempts to identify intellectual and affective factors that operate when students use the classification procedures.
3. Examination of the effects of extended training in the classification procedure.

This article is based on a M.Ed. thesis carried out in 1972 under the supervision of Dr. F. Simon at the University of Calgary. The first author is indebted to Dr. Simon, his thesis committee and the administrators and teachers in the Calgary Separate School Board who made the study possible.

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Alberta Department of Education

## Educational Feasibility Studies: A Conceptual Framework

*Administrators planning to adopt an educational innovation or change face high levels of risk which result from the attendant uncertainty of the innovation or change. A question often asked is, "Is it feasible to adopt this innovation?" Education feasibility studies offer a way of reducing the levels of uncertainty surrounding proposed innovations or changes, prior to adoption. An educational feasibility framework is described which considers constraints to feasibility, sources of data for determining feasibility, and feasibility study methodology. The framework may be translated into a study plan by specifying detailed criteria for assessing constraints, identifying data sources, and choosing an appropriate methodology. (Dr. Hathaway is an Education Consultant with the Planning and Research Branch of the Alberta Department of Education, Edmonton.)*

As the pace of technological advancement quickens, ever-increasing numbers of changes and innovations confront the educational administrator. The risk of being innovative is high because many of these changes and innovations fail during adoption. There is need for a method of assessing or predicting the merit of a change or innovation before its adoption.

Prediction rather than description is the characteristic which most readily distinguishes feasibility studies from evaluations. Feasibility focuses on the "capability of being carried out or completed successfully, with predicted success significantly greater than chance" (Kaufman, 1972, p. 127). Evaluation, on the other hand, is described by Alkin (1969) as "the process of ascertaining the decision areas of concern, selecting appropriate information, and collecting and analyzing information in order to report summary data useful to decision-makers in selecting among alternatives" (p. 2).

Unquestionably, evaluations are necessary—they have a role to play in insuring that goals and objectives are attained. The point being made is that feasibility studies could be used more extensively to screen out methods of



attaining goals and objectives which would have a high probability of failure if adopted.

Feasibility is a multi-faceted concept. Hussain (1973) identified economic and financial constraints, organizational constraints, and technological constraints. Dror (1968) identified economic and political constraints. Johnson and Shearon (1970) suggested that feasibility is constrained by judgments of quality—effectiveness and efficiency. The concept of feasibility was further enlarged by the studies carried out at the University of Massachusetts (1970), to include a pedagogical constraint, a constraint of timeliness and an administrative constraint. Their administrative constraint appeared similar to Hussain's organizational constraint. Generalizability was identified as a constraint in the studies carried out by both the University of Massachusetts (1970) and Melnotte (1970).

Two sources of data for assessing feasibility have been identified. Johnson and Shearon (1970) discussed assessment of feasibility theoretically. Most of the other cited studies assessed feasibility operationally—through pilot studies or demonstrations.

Finally, two schools of thought were identified pertaining to feasibility study methodology. Kaufman (1972) prefers to continuously assess feasibility while nearly all of the other studies determined feasibility by means of a specific study conducted prior to complete adoption of an innovation. Johnson and Shearon (1970) identified four ways in which a specific feasibility study may be carried out: through consultation with experts, assessment, simulation, and demonstration.

### *Feasibility—Definitions and Models*

In assessing the feasibility of an innovation, the first question which must be answered is, "What constitutes feasibility?"

Feasible, by definition, means "capable of being carried out." Clearly this definition differs from a definition of evaluation—"the process of assessing the attainment of objectives and the worth of programs" (Curtis, 1975, p. 51). Definitions of feasibility which are more specific than those offered by lexicographers are offered by relatively few educational theorists, mainly those who also advocate the use of various systems analysis techniques.

Hussain (1973) shed light on the meaning of feasibility. To one involved in operations research, a feasible solution is an optimum solution. To computer scientists, the feasibility study leads to a decision to acquire, or not to acquire, computer equipment. To the systems analyst, feasibility describes the practicability of a proposed change. It is in this latter sense that feasibility is used in this discussion. Hussain further enlarged the concept of feasibility by identifying and describing three types of constraints: economic and financial constraints, organizational constraints, and technological constraints.

The Georgia Study (Johnson & Shearon, 1970) considered feasibility criteria on two levels. The first-order feasibility criteria suggested that:

1. the program model should produce better teachers,
2. the developed strategy for developing and engineering the model should be effective in accomplishing its goals, and
3. the program model should be socio-psychologically feasible.

These first-order criteria were expanded to second-order criteria suggesting that:

1. the model should be reasonable in terms of demands on the time of students, teachers, and administrators,
2. the costs should be in line with present costs,
3. the instructional program should be acceptable to man's environment,
4. the needed materials and equipment should be attainable, and
5. the model program should be transportable to other institutions.

A study conducted at the University of Massachusetts (1970) to examine the feasibility of a Model Elementary Teacher Education Program attempted to answer six questions:

1. Is the model pedagogically sound—does it work?
2. Is the model economically feasible?
3. Is the model administratively feasible?
4. Is the model technically feasible?
5. Are the clients (those served by the model) satisfied?
6. Will the model retain relevance for teacher education? (University of Massachusetts, 1970)

The study method adopted by the University of Massachusetts was comprehensive. Pedagogical feasibility was determined by a study team for each subject area. Each of the other feasibility constraints was assessed across the entire program, with many of the feasibility assessment criteria selected on the basis of common sense.

Melnotte (1970) in his study into the operational feasibility of an apprenticeship work-study program raised a number of questions, some of which appear to be generalizable to a variety of feasibility studies.

1. How effective is the program in terms of the knowledge and skills gained?
2. How successful is the program?
3. How generalizable or exportable is the model or approach?
4. What is the student reaction to the program?
5. What should be the content and procedures for follow-up?
6. How responsive is the manpower pool?
7. What modifications of the model, or approach, might be considered for future efforts?

### *Timing of the Feasibility Study*

When the feasibility study should occur in the planning cycle is yet another question of relevance. Kaufman (1972) suggested that feasibility can be determined as part of an ongoing study and Hussain (1973) outlined a discrete feasibility study plan. Most of the studies reviewed were of this latter type.

### *Constraints on Education Feasibility*

The most important aspects of the educational feasibility study are the feasibility constraints. Eight feasibility constraints have been identified:



qualitative, organizational, technical, political, pedagogical, economic, timeliness, and generalizability.

*Qualitative.* The qualitative feasibility of a program or innovation is an expression of the effectiveness and efficiency of the program or innovation. Effectiveness is determined by the degree to which stated objectives are achieved. Efficiency describes the degree to which resources are used to produce a unit of output (or to achieve a stated objective).

*Organizational.* Organizational feasibility describes the impact the change may have on the organization. Hussain (1973) identified three areas of potential impact: the need for reorganization in order to implement the change; resistance to the change; and human resources which are inadequate by virtue of quality and/or quantity.

*Technical.* Technical feasibility describes the availability of the necessary hardware (things) and software (processes) required to implement an innovation.

*Political.* Assessing political feasibility constitutes determining that an innovation meets the needs of its clientele in a way that does not conflict with social values and norms.

The political feasibility of a policy is the probability that it will be sufficiently acceptable to the various secondary decision-makers, executors, interest groups, and publics whose participation or acquiescence is needed, that it can be translated into action. Political feasibility depends on the power structure of the involved systems, and on the ability of the policy-makers and of the policy itself to recruit support. (Dror, 1968, p. 35)

*Pedagogical.* Pedagogical feasibility describes the extent to which an innovation, or program, is educationally sound.

*Economic.* The economic constraint is composed of two components. First, the innovation is constrained by its cost-benefit or cost-utility ratio. Secondly, the innovation is assessed in terms of cost-fit (the extent to which the innovation can be financed from existing resources).

*Timeliness.* Timeliness assesses feasibility in terms of the relevancy of the approach both now and in the foreseeable future. Stated another way, a timely innovation should be able to interface with known and foreseeable constraints.

*Generalizability.* Assessment of generalizability focuses on the range of areas in which an innovation may be applicable.

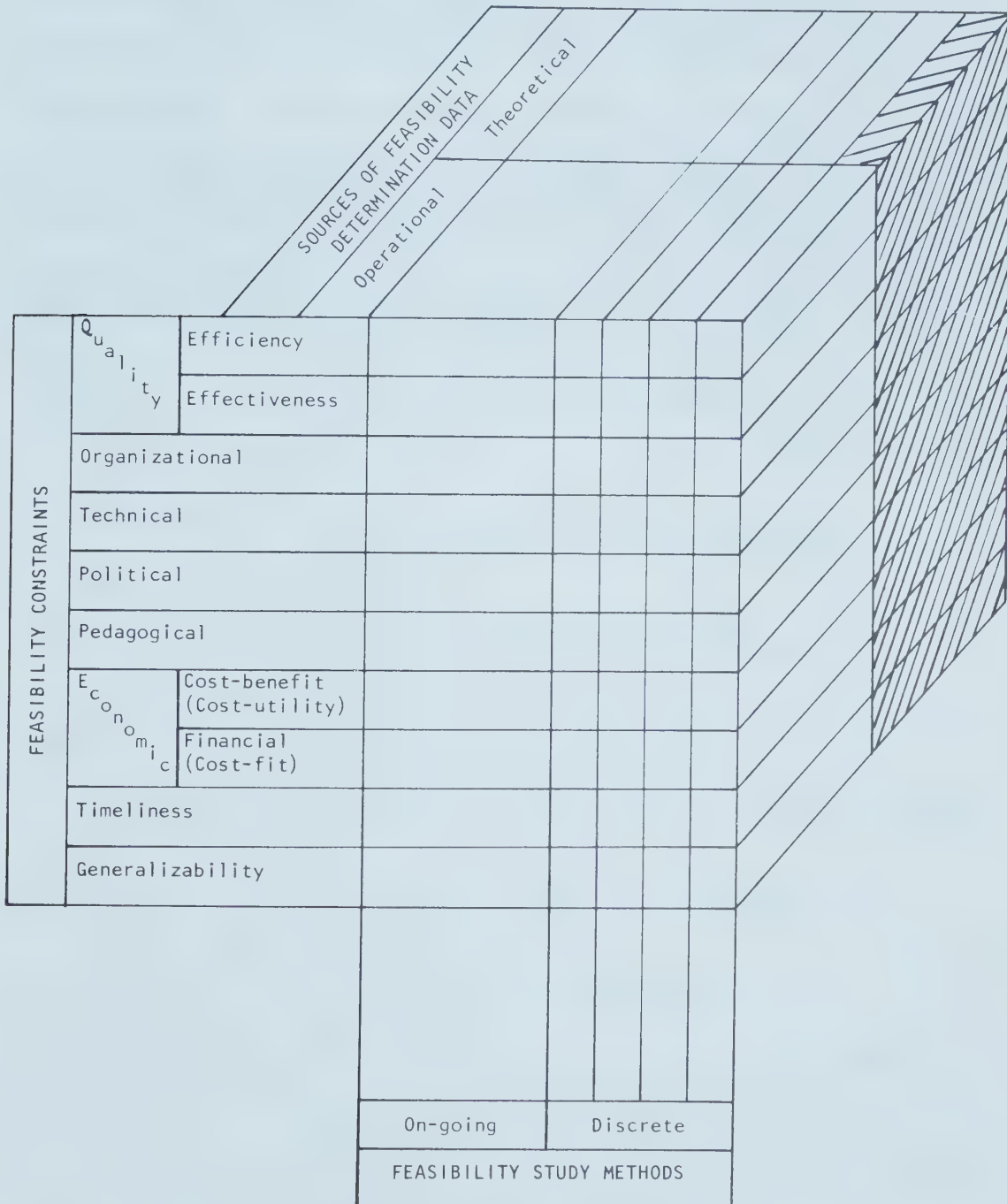
### *A Conceptual Framework for Studying Educational Feasibility*

Three facets of the educational feasibility study have been identified: constraints to educational feasibility, feasibility study methods, and sources of feasibility determination data. One way of examining the inter-relatedness of these facets is through use of a framework. Subdividing each facet of feasibility by the elements derived from the literature review yields the conceptual framework for studying educational feasibility shown in Figure 1.

One of the risks associated with development of a matrix or cubic model is that some of the cells may be meaningless. The conceptual framework is no exception—the shaded cells representing “theoretical demonstration” serve as an example. There may be others, although they are not so obvious.



FIGURE 1  
A CONCEPTUAL FRAMEWORK FOR THE STUDY OF EDUCATIONAL  
FEASIBILITY



The proliferation of innovations confronting the educational administrator is overwhelming. Feasibility studies have been advanced as a means of assessing these innovations before adoption in order to avoid the costs of implementing ineffective innovations. The three facets of feasibility studies—sources of feasibility determination data, feasibility study methods, and constraints to feasibility—when assembled into a conceptual framework, can provide the basis for preadoption assessment of innovations.

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## Alberta Advisory Committee for Educational Studies—Funded Research

The Alberta Advisory Committee for Educational Studies was formed in 1953 to further educational research. It has provided financial support for publications which disseminate reports of educational research. It has also operated as a granting agency to provide funds for small scale studies in education. The following is a list of current studies being supported by A.A.C.E.S. Some are just being initiated while others are nearing completion. Those interested in further information are advised to contact the particular researcher at the address indicated.

Bergen, J. J.                      Department of Educational Administration  
The University of Alberta, Edmonton, Alberta.

*"The Development of Simulation Materials Focusing on the Problems of Classroom Teachers"*

Bhattacharya, N. C.          Department of Educational Foundations  
The University of Alberta, Edmonton, Alberta.

*"John Dewey: A Critical Study"*

Blowers, E.                      Department of Educational Psychology  
The University of Alberta, Edmonton, Alberta.

*"An Investigation of the Visual Tracking Syndrome"*

Bride, K.                         The Alberta Teachers' Association  
11010 - 142 Street, Edmonton, Alberta.

*"Teacher Education Toward the Year 2000: The View of Canadian Teacher Organizations"*

Cameron, J. R.                 Department of Curriculum and Instruction  
The University of Calgary, Calgary, Alberta.

*"A Guide to Publishing in Education"*

Castonguay, T.                 Grant MacEwan Community College  
Edmonton, Alberta.

*"Computerized Item Retrieval of Medical-Surgical Nursing Test Items"*

Clark, A. K.                      Department of Industrial & Vocational Education  
The University of Alberta, Edmonton, Alberta.

*"The Readability of Recommended Texts in Industrial Education Programs"*

Das, J. P.                         Centre for the Study of Mental Retardation  
The University of Alberta, Edmonton, Alberta.

*"Comprehension and Memory of Syntagmatic and Paradigmatic Groups of Words"*

Dueck, K. G.                      Department of Curriculum and Instruction  
The University of Calgary, Calgary, Alberta

*"The Status of Geographic Education in Canada: Research and Teaching"*



## *Funded Research*

- Everett, L.                      Department of Elementary Education  
The University of Alberta, Edmonton, Alberta  
*"A Curriculum Model for the Use of Learning Centres in Early Childhood Teacher Preparation"*
- Fris, J.                         Department of Educational Administration  
The University of Alberta, Edmonton, Alberta  
*"Professionalism and Militance Among Alberta Teachers"*
- Goodman, H. J. A.         Department of Curriculum and Instruction  
The University of Calgary, Calgary, Alberta.  
*"The Development of Concepts Concerning the Establishment of a World Education/Information/Research and Encyclopedia System-Network"*
- Gordon, I.                    Department of Educational Foundations  
The University of Calgary, Calgary, Alberta.  
*"A Crosstemporal Study of Equality of Educational Opportunity for Girls Within the Calgary High Schools: 1926, 1936, and 1946"*
- Guay, J.                      Faculty of Education  
The University of Lethbridge, Lethbridge, Alberta.  
*"Biology and Life Science Classroom Teaching Environment in Zone 6"*
- Guay, M.                      Faculty of Education  
The University of Lethbridge, Lethbridge, Alberta.  
*"Relations Between Psychological Test Performance at Admission and Student Teaching Performance"*
- Gupta, K. R.                 Department of Educational Psychology  
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*"Testing and Testing Personnel in Edmonton and Calgary"*
- Holdaway, E. A.             Department of Educational Administration  
The University of Alberta, Edmonton, Alberta.  
*"The Satisfaction of Teachers in Alberta with Their Work and Conditions of Employment"*
- Holliday, W. G.             Department of Curriculum and Instruction  
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*"Different Study (Mathemagenic) Questions and Science Explanatory Illustrations"*
- Kirman, J. M.                Department of Elementary Education  
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*"Preparing Teacher Candidates to Use ERTS Maps"*
- Koch, E. L.                   Department of Educational Administration  
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*"Machiavelli and the Principal: Perceptions of Administrative Effectiveness and Dispositions on the Part of School Administrators Toward Manipulative Values in Human Relations"*

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*"A Survey of Music Education in Zone 6"*
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- Orteza, E. M.                      Department of Educational Foundations  
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*"The Impact of Progressive Education on Canadian Schooling"*
- Rooney, S. E.                      Education Library  
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*"What is the Appropriate Role of the University of Alberta for Service to Lifelong Education?"*
- Whitehead, R.                      Faculty of Education  
The University of Lethbridge, Lethbridge, Alberta.  
*"A Pilot Study to Determine Criteria and Techniques for Evaluating Success of Teachers"*

*Funded Research*

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   The University of Alberta, Edmonton, Alberta.

*“A Survey of the Supply and Demand of Vocational Guidance Personnel in Canada”*

Yewchuk, C. R.                      Department of Educational Psychology  
   The University of Alberta, Edmonton, Alberta.

*“The Role of Sex and Intelligence in Moral Development of Normal Educable Mentally Retarded (EMR) Children”*



A. MOHANTY

and

L. L. STEWIN

*The University of Alberta*

## Cultural Variables in Conservation: A Model For Cross-Cultural Research

*A cross-cultural model for development of conservation has been proposed from a review of previous researches. The model accepts Elkind's (1967) distinction between identity and equivalence conservation and also draws from Furby's (1971) analysis of cross-cultural factors. Cultural, ecological, and educational variables in relation to magical thinking, perceptual flexibility, and logical reasoning seem to be crucial in development of children's judgments and explanations in conservation tasks. Some variations to the standard testing procedure viz., screening and self-transformation, have been suggested to test the hypotheses derived from the model and also as training techniques suitable for cultural differences in children. (Mr. Mohanty is a doctoral student and Dr. Stewin is Associate Professor in the Department of Educational Psychology at the University of Alberta.)*

Piaget's stage-invariant theory of cognitive development has often been dubbed as one too much dependent on biological maturational processes. Certainly, Piaget's theory reflects his belief in a significant role of natural biological growth process and can be placed on one side of the continuum, the other side of which is represented by Bruner's (1964; Bruner, Olver & Greenfield, 1966) emphasis on the role of language and other cultural factors. A careful analysis of Piaget's theory reveals that he is not as extreme a maturationist as many would like to believe. One reason for the widespread misconception of Piagetian theory is that most studies using Piaget-type tasks also used "average western subjects." This built-in homogeneity among subjects resulted in finding spurious *universality* in the age-stage relationships and in the sequence of various cognitive abilities. Recent replications of these studies in nonwestern societies show that the rate of cognitive development is dependent upon various experiential and ecological variables, whereas developmental sequences are perhaps largely predetermined. These findings, however, do not limit the generality of

Piaget's theory since he never claimed that cognitive development is determined *only* by biological (maturational) processes. Piaget (1966) outlined four types of factors, the interaction of which determines the nature of cognitive development: (1) biological factors; (2) equilibration factors; (3) social (interpersonal coordination) factors; and (4) factors of educational and cultural transmission. The last two of these factors are complex and multidimensional and, in fact, may be responsible for any intercultural difference in the development of cognitive abilities. Dasen (1972) notes that studies can be cited to support any of the following possibilities: that conservation and other cognitive abilities of nonwestern children compared to western children develop (a) at the same time (Price-Williams, 1961; Goodnow, 1962); (b) earlier or more quickly (Tuddenham, 1969); (c) later or more slowly (Greenfield, 1966; Greenfield & Bruner, 1966). These possibilities implicitly assume that the final level of attainment is universally comparable. A fourth possibility has also been shown to exist: (d) that certain nonwestern groups never reach the cognitive level of westerners; in fact, they do not develop beyond the early concrete operational stage (de Lemos, 1969). Some studies even report loss or "regression" to an earlier stage of development (Kohlberg, 1968). Clearly, the interaction between culture and cognitive growth is far more complex than a mere western-nonwestern dichotomy.

#### *Conservation Tasks and Problems in Cross-Cultural Comparison*

The clinical procedure involved in the administration of Piagetian tasks has been seen as a boon to cross-cultural testing. These tasks are noted for their flexibility of use in widely different cultures as well as for their potentiality in measurement of cognitive development. But unfortunately the flexibility became too loose to result in comparable data and to minimize Type I and Type II errors. For example, there has been no consensus as to whether judgment or explanation of judgment is the minimum condition for inference about cognitive structure. Brainerd (1973) tried to resolve this controversy primarily between Braine (1959, 1962, 1964) proposing a judgment criterion and Smedslund (1963, 1965) favoring an explanation-of-judgment criterion. Brainerd concluded:

a) the theory (of Piaget) not only fails to justify an explanation criterion, but makes such a criterion seem highly inappropriate to the task of determining the presence of cognitive structure; b) the judgment criterion seems well-suited to the task of determining the presence of cognitive structures. (p. 177)

Of course, an explanation-via-language criterion may be sometimes misleading because it may depend upon the capacity of the cognizer to verbalize his *inner structure* and also, verbalized explanations may be prone to subjective interpretations. As an illustration, direct action explanations ("You poured them" or "You can squeeze it back to previous shape", etc.) have been considered as "primitive" and involving magical thinking in some conservation studies (Greenfield, 1966; Lloyd, 1971). Brainerd (1973), on the other hand, argues that such explanations show "inversion reversibility" and are adequate. Interpretation of verbal explanations in Piaget-type tasks (in any testing situation, for that matter) may thus be controversial if not erroneous. In spite of that, the information that can be gained from explanations given by a child about how he arrived at a



judgment may be too valuable to ignore on these grounds. Brainerd (1973) hastens to add:

Explanations can supplement judgment in such a way that one is provided with insight into the nature of the structure or structures under consideration. (p. 178)

Explanation may at times be more important than judgment itself and therefore, choice will largely depend upon the type of interest in a testing situation and not necessarily on any absolute criterion. Given a basic agreement in interpretation of various explanations, it may be of importance to find out the type of explanation across cultures and, through them, to show how cultural forces operate and interact to produce a definite cognitive structure. Many such problems can be identified in Piagetian tests. Lloyd (1972) and Dasen (1972) reviewed the cross-cultural findings on horizontal *decalage* and showed the lack of agreement in the sequence of difficulty of various conservation problems between different cultures. Ideally, cross-cultural comparisons should establish the generality of a theory when agreement across cultures is found, or else they should be able to modify and improve the theory by pinpointing the factors that operate at variance, when cross-cultural differences are obtained. But unfortunately the significant independent variables are not isolated and are, more often than not, subsumed under a gross label—"culture." Such gross independent variables are not independent in the sense of their explanatory values. Very often, a post hoc explanation of the finding is offered in terms of some specific variables that *might possibly* be operating within the culture and this adds to the confusion it seeks to solve. Based on a review of several studies on conservation, a cross-cultural model for the development of conservation ability has been attempted in this paper in terms of different cultural variables that might be specifically related to conservation.

#### *Culture and Conservation—Some Significant Variables*

Elkind (1967) analyzed the logical steps involved in a Piagetian conservation task and distinguished between identity conservation and conservation of equivalence. Identity is "conservation of a given quantity across a reversible transformation and with respect to itself alone"; equivalence is "the invariance of quantitative relation across a transformation of one of the elements of that relation" (p. 25). A typical conservation task involves the following steps. First, the subject is satisfied that a standard (S), A, and a variable (V), B, are the same on any dimension (e.g., length, number, quantity, etc.). Second, the variable is then transformed from V to  $V_1$ . Third, the subject is asked to judge  $S = V_1$ . According to Elkind, to be able to give a correct judgment, the subject must first judge  $V = V_1$  (identity) and then  $S = V_1$  (equivalence). In other words, there is a logical priority of identity conservation over conservation of equivalence. Hooper (1969) also demonstrated the developmental priority of identity judgment over equivalence judgment. Identity judgment, in turn, depends upon the schemata of reversibility and invariant quantity and this is where the impact of cultural and socialization processes appears to be crucial. Furby (1971), in her review of cross-cultural research on conservation, showed that in some cultures *magical thinking* is an essential element of a child's cognitive structure and this may affect his judgment of identity. Magical thinking can be thought of as a child's belief that the unusual and the



irrational can and do happen and that the experimenter may have the power to make them happen. In Greenfield's (1966) study Wolof children, in comparison to American children, gave more direct action reasons in support of conservation, thus displaying a greater degree of belief in the external control of events and magical thinking. The writers would like to add that a magical element is part of almost all cultures with a tradition of stories wherein a person is helped by an omnipotent being. External control factors such as fate, magic, and miracles are often reflected in folk tales, religion and other cultural rites and rituals and are transmitted in some form to the child. The real difference, therefore, is how actively adults inhibit or induce this magical element in a child's thinking. Further, magical thinking is reflected not just in nonconservation explanations but in conservation explanations as well. If a magically thinking nonconservers says, "There is more because you poured it", a conserver might also say, "You can pour it back and they will be the same." Both the explanations reveal the degree of belief in an external factor or in the (magical) power of the experimenter. However, in the conserver's thinking, the concept of reversibility interacts with the magical element. Direct action reasons can thus reflect primitive thinking, although the line of distinction is very subtle.

Once the subject has judged the identity his next task is to judge equivalence. This task, in fact, involves a deductive reasoning process which must proceed in the following way:  $S = V$ ,  $V = V_1$ , therefore,  $S = V_1$ . This reasoning has to prevail in spite of perceptual differences between  $S$  and  $V_1$ . In other words, perceptual flexibility is a necessary precondition to logical reasoning in conservation of equivalence. Thus, the impact of school education and acculturation on reasoning ability may not show up in a young child who is otherwise perceptually rigid. In Goodnow's studies (1962; Goodnow & Bethon, 1966) low SES Chinese children with no schooling were as good conservers as Hong Kong-European and American children. Goodnow notes that Chinese children were perceptually more flexible with their "catty carrying experience." The experience of carrying a catty of rice in bags of varying shapes and sizes may have helped them in their judgment of quantity in relation to various perceptual cues. In Price-Williams' (1961) study, unschooled Tiv children in central Nigeria did not differ from schooled western children in conservation ability. Greater perceptual flexibility of Tiv children due to a manual action-oriented environment seemed to compensate for the lack of schooling. Furby (1971) draws support from studies by Goodnow and Greenfield to argue that the effect of schooling can only be seen in the context of environmental influence on perceptual flexibility. She writes:

. . . . the level of technical-development-dimension involves the degree of perceptual flexibility the child has acquired. The child in a manually-oriented environment is much more likely to have the ability than the child in a more automated environment, due to a difference in the amount of interaction with the environment which leads to the ability to accurately assess object properties using perceptual attributes. (p. 247)

Thus, ability to judge equivalence in terms of shape, size and other perceptual dimensions rather than being rigidly fixed with one single attribute may come through direct environmental experience even without

schooling. Unschooling “catty-carrying type” children may not differ from or even may be superior to western children at an earlier age. But gradually the impact of school and informal education in home and outside environment will help the latter get rid of perceptual rigidity and develop logical reasoning. So, at a later age, western children may be superior to other unschooled children in primitive societies. Effect of schooling, type of environment, and age will thus interact to produce different results in cross-cultural comparison. As Furby has shown, analysis in these terms can explain the apparent contradiction in cross-cultural studies.

With reasoning ability and perceptual flexibility supplementing the identity concept, conservation of equivalence is the next logical development. The child can now judge  $S = V_1$  and must use his verbal ability to explain his judgment.

Figure 1 gives a schematic representation of the proposed model. Three factors within a given culture (including ecological, educational and sociological factors like type of environment, schooling and acculturation) stand out in the model. They are:

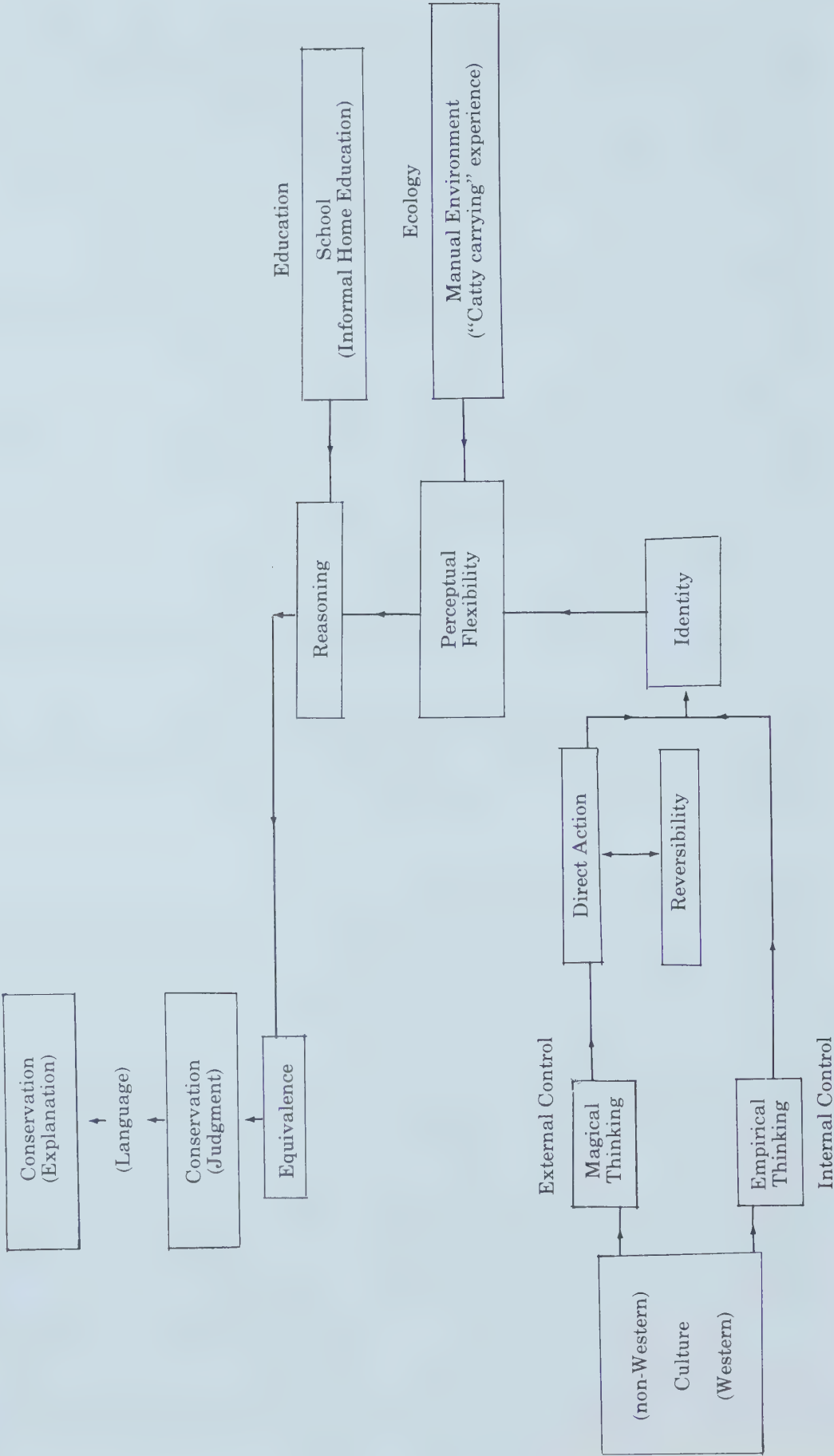
- (i) Cultural influence on magical thinking;
- (ii) Early experience in a manual environment and later schooling facilitating perceptual flexibility;
- (iii) Formal schooling and other informal educational experiences within a culture inhibiting earlier magical thinking and developing reasoning ability.

Some possible implications of the model for cross-cultural comparison of conservation abilities can now be discussed in relation to the factors described above. In addition, some methodological variations to the tests of conservation will also be considered to demonstrate the role of these variables.

#### *Magical thinking and conservation*

The proposed model suggests that in cultures where primitive magical thinking is predominant and where the environment offers little in terms of perceptual experience, children are likely to be delayed conservers compared to western children. Primitive and magical elements in a culture can be shown to be reflected in an external locus of control dimension in the personality of children who are more likely to attribute magical powers to the experimenter and experimental situation as a whole. Children in such cultures, therefore, can be expected to give more direct action explanations for their nonconservation as well as conservation judgment, by referring to the act of the transformation by the experimenter himself. For example, a typical explanation of a nonconservation would be, “You made it more.” Conservers’ direct action reasons may be frequently like this statement: “You just rolled it, so they are the same.” Some distinction ought to be made between direct action reasons given by conservers and nonconservers. The same type of statement can be given in support of different judgments but in case of the former, perceptual flexibility and reasoning ability are sufficiently developed to the extent of inhibiting the effect of magical thinking. However, the influence of magical elements can still be observed through more elaborate language mechanisms. At this point, the authors

FIGURE 1  
CROSS-CULTURAL VARIABLES IN DEVELOPMENT OF CONSERVATION





would like to reiterate the necessity of using an explanation criterion in cross-cultural studies. As has been discussed earlier, there is some doubt as to the adequacy of direct action reasons. Some authors (Brainerd, 1973) do not see anything "primitive" about a direct action explanation. It can be pointed out that direct action reasons may not be "primitive" when they show "inversion reversibility", eg., when a conserver says, "You can pour it back and make them equal." Obviously, such statements show some logical process but it is still hard *not* to see the emphasis on the action of the experimenter and the power attributed to him. This assertion can be tested by comparing the number and type of direct action explanations of conservation given by children in traditional mystic cultures with those of western children.

#### *Role of perceptual factors in conservation*

Although magical thinking is likely to have an interfering effect on the development of conservation ability in most of the nonwestern cultures, a highly action-oriented manual environment would induce perceptual flexibility in the children quite early in life. Western children, on the contrary, are more likely encouraged to inhibit their magical thinking, but perceptual flexibility may develop much later. Thus developmental differences in the type of conservation/nonconservation explanations can be expected. Western children may be expected to give more perceptual explanations with their nonconservation judgments, referring to the perceptual discrepancy as explanation of nonequivalence. They may not get rid of this perceptual rigidity without formal school education which has been shown to have definite influence on perceptual information processing and logical reasoning processes (Bruner et al., 1966; Schmidt, 1960, 1966). In certain nonwestern societies even the unschooled children of early school age can be expected to show conservation which is better than, or at least as good as, that of western schooled children of the same age because the former do not need schooling for the development of perceptual flexibility which is induced through direct experience in a manual "non-carpentered" environment. However, with increasing years of schooling, the western children may soon compensate for lack of this early experience, and the gap due to the effect of perceptual flexibility may be reduced.

The foregoing discussion assumes that perceptual factors are important in conservation task. Hooper (1969), however, argued to the contrary. He found no difference between the effects of moderate and extreme transformation in conservation test. Screening of standard stimulus container prior to transformation was shown by him to have no effect on conservation. It must, however, be remembered that the difference between moderate and extreme transformations as in Hooper's study may not necessarily be analogous to differences between some and no perceptual cues and, besides, screening of the standard container before transformation cannot eliminate the information regarding perceptual disparity because the subjects would still remember the height of the substance in the screened container. Further, even if perceptual factors may not be important in the case of schooled western children, the same cannot be said of unschooled children of other cultures.

*Cultural influence and training for conservation*

Two factors affecting conservation have been shown to be identifiable from the explanations given by the nonconservers, viz. magical thinking and perceptual rigidity. An extended testing procedure will be suggested here to detect these factors and possibly eliminate their effects at least in case of children who are in a transition from identity to equivalence conservation or whose conservation judgments are inhibited by their magical thinking. The extended testing procedure will be illustrated with conservation of continuous quantity (water) problem. The first step in this procedure is Frank's screening procedure (cited in Bruner, 1964), in which water is poured by the *experimenter* from the wider glass to the narrower and taller glass behind a screen with the top of the taller glass visible to the subject, who is then asked to judge the equivalence of the quantity. Although the subjects should be able to infer the width and height of the screened glass from its visible top, those who have trouble with disparate perceptual cues should find it easier to give a conservation judgment because the height of the water level in the new container is not visible. The screen may then be removed and some subjects will perhaps change their judgment depending upon how much their judgment is tied up with misleading perceptual cues. The procedure may be repeated for such subjects.

The second step in the extended testing procedure is to ask the nonconservers (particularly those giving direct action explanations) to effect the transformation themselves. This may help the subjects get rid of their magical belief by assuming greater self-control over the experimental situation. Self-transformation may also help the subjects internalise the operation involved and thus give a conservation judgment. A number of repetitions of this procedure may be necessary before the subjects can assimilate the fact that they do not add anything to the amount of water in the previous container. It may also be necessary to combine the two steps for greater effectiveness. In such cases, the subjects would be required to pour water from one container to the taller and narrower container when the latter is behind a screen with only its top visible to them. Following repeated trials and a possible correct judgment, the *experimenter* may go back to either Step 1 or Step 2. Inversion or empirical return (pouring the water from taller and narrower glass back to the original container) have also been used to induce conservation (Schnall, Alter, Swanlund & Schweitzer, 1972). Such a technique can fight the magical factor in a nonconservers' thinking process. However, these methods of training for conservation may have differential impact in different cultures depending upon the extent to which training is directed at the specific area of deficit of the child in a given culture. Screening may be more effective with western children whereas self-transformation experience is more likely to change nonconservation judgments in most nonwestern societies. In terms of long term implications for cognitive development it might be expected that educational systems directed towards development of logical reasoning (and simultaneously reducing magical thinking) would be most effective in nonwestern underdeveloped societies.

In summary, the proposed model of attainment of conservation ability



takes into account the possible effects of magical thinking, perceptual flexibility, and logical reasoning, all induced by and within the culture. An analysis has been made on the basis of an earlier formulation by Furby (1971). The model accepts Elkind's distinction between identity conservation and conservation of equivalence and also assumes logical and developmental priority of the former. It seems possible that the factors outlined above operate hierarchically and therefore, attainment of conservation may depend upon the lower order conditions being adequately built up in the child. Perceptual flexibility and reasoning ability, for example, would help a child only after magical elements in his thinking have been effectively reduced and identity conservation established. The contention of hierarchy in the model, however, lacks empirical support at present and has to be verified through deliberate training attempts like the ones suggested here. In conclusion, it can be pointed out that the model seems to have some prima facie validity for cross-cultural comparison of conservation. Although Piaget's theory does not deny significance to cultural and educational factors in development of conservation, few attempts have been made to study systematically the role of specific cultural variables to find out how they relate to children's conservation/nonconservation judgments and explanations in different cultures. It is hoped that the model discussed here would provide a conceptual framework for such analyses.

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## Functional Reading Levels: From Graded Word Lists?

*This study investigated the relationship of functional grade placements derived from a full scale informal reading inventory, the Standard Reading Inventory (SRI), and grade placements derived from the word list subtest alone.*

*One hundred forty-six students in grades one through six were tested. Multiple regression analysis indicated a high relationship between the full scale SRI and the word list alone. Consequently a rule of thumb was derived for the quick estimating of reading levels. (Dr. Froese is Associate Professor in the Department of Curriculum, Faculty of Education, The University of Manitoba.)*

Graded word lists are commonly used to match students with instructional materials. Word lists such as the San Diego Quick Assessment (LaPray & Ross, 1969), the Graded Word Reading Test (Schonell, 1966), and the Dolch Basic Sight Word Test with McBroom, Sparrow and Eckstein criteria (Zintz, 1972) result in grade levels or book levels. Furthermore, informal reading inventories such as the Standard Reading Inventory (McCracken, 1966), the Classroom Reading Inventory (Silvaroli, 1969) and others utilize graded word lists as starting level guides for oral and/or silent paragraph reading.

The existence and utility of these instruments suggest a close relationship between scores on graded word lists and functional reading performance. If this assumption is justified, may functional reading levels be accurately estimated from word reading tests?

This study sought to answer the questions: May functional reading levels (independent, instructional, frustration) be predicted from word recognition tests? If so, how accurately do they predict these levels?

In particular, this study investigated the feasibility of using the McCracken Word List (MWL), a subtest of the Standard Reading Inventory, since it is one of few with adequately documented reliability and validity (McCracken, 1963). MWL results have also been shown to be highly

correlated to other widely used word lists, although the absolute placement may vary significantly among tests (Froese, 1971).

### *Hypotheses*

1. There is a significant correlation between word recognition test results and extended reading as required in the Standard Reading Inventory.
2. All functional levels—independent, instructional, frustration—may be predicted from the word recognition test results.
3. Alternate scoring procedures for the word recognition tests may result in higher predictive validities.
4. Functional reading estimates may be made from word recognition test results.

### *Sample*

The 146 subjects in this study were enrolled in a campus school in Washington State. A full range of IQs slightly skewed toward the upper end was represented with a mean of 118 on the California Test of Mental Maturity. Grades one through six were represented (Gr. 1,  $N=25$ ; Gr. 2,  $N=24$ ; Gr. 3,  $N=25$ ; Gr. 4,  $N=25$ ; Gr. 5,  $N=23$ ; Gr. 6,  $N=24$ ).

### *Methodology*

The word list and reading level results of 146 individually administered Standard Reading Inventories (SRIs) were analyzed to give the information below. It should be noted that items 1, 2, 3, 4, and 6 are scored as outlined in the SRI Manual (McCracken, 1966). Pages two and three on the test contain a General Scoring Sheet which simplifies the interpretation of raw scores to the items below without calculation.

1. Independent reading level: The highest book level at which the child rates as independent in all subtests (using SRI scoring procedures and criteria). At primer and first reader levels, silent reading rate must at least equal the oral reading rate; at higher levels, silent rates must exceed oral rates.
2. Minimum instructional level: The book level immediately above the child's independent level.
3. Maximum instructional level: The book level immediately below the frustration level.
4. Frustration level: Several conditions will result in frustration level ratings. The subject may (a) score at the frustration level in one subtest, (b) have half or more of his scores fall under the questionable instructional category at a book level, or (c) have the vocabulary, errors, comprehension or speed areas fall under questionable-instructional at two consecutive reader levels (in which case the frustration level is at the higher of the two reader levels).
5. Number of words correct on each grade level list attempted: The pre-primer list contains fifteen words, the remaining ten lists each contain twenty-five words.
6. Grade level at which the MWL was terminated (stopping level): The MWL is continued until the child makes eight successive errors or until less than half the words on a list are pronounced correctly.



7. Sum of correct responses to stopping level: This is the total of all correct responses up to and including the stopping level. If a student's MWL is begun at the first level (or some other level) it is assumed that he would have scored correctly on the preceding (lower) lists.

Weighted scores were assigned to the commonly used book levels for purposes of statistical analysis:

PP = 1.1	1st = 1.7	3-1 = 3.2	5th = 5.5
P = 1.4	2-1 = 2.2	3-2 = 3.7	6th = 6.5
	2-2 = 2.7	4th = 4.5	7th = 7.5

Analysis and Findings

The data were key-punched and submitted to a step-wise multiple regression program which resulted in the following matrix (rounded to three decimal places).

Hypothesis 1 may be tested by referring to Table 1. It can be seen that stopping levels (the point at which word list reading is terminated according to SRI instructions) are highly related ( $p < .01$ ) to all functional reading levels. Correlations range from .825 to .925. This means that a large part of the variance of the full scale SRI is accounted for by the word list and that predictions may be made from the word list (MWL) to the functional levels determined by the complete SRI.

TABLE 1  
CORRELATION MATRIX FOR DEPENDENT AND INDEPENDENT VARIABLES  
(N=146)

	Ind.	Min. Inst.	Max. Inst.	Frust.	Stopping Level
Sum to Stopping Level	.837	.857	.922	.930	.978
Stopping Level	.825	.822	.878	.925	

All coefficients are significant at .01 level.

Again, referring to Table 1, one may examine Hypothesis 2. When word list stopping levels are considered in relation to individual levels, it is noted that each correlation is significantly different from zero. That is, from "sum to stopping level" one may predict the independent level, the minimum instructional level, the maximum instructional level, and the frustration level on the full-scale SRI. The same holds true for the "stopping level" although the correlation coefficients are slightly lower.

To test the third hypothesis, it is necessary to use a statistical procedure (McNemar, 1969) which takes into account the fact that sum to stopping level and stopping level are correlated. Since the maximum instructional level is the most important level for classroom teachers, the two coefficients (for the two scoring systems) were compared. It is noted that sum to stopping level is correlated .922 with maximum instructional level and .878

with stopping level. When the difference of these two scores is tested by the procedure mentioned above, a *t* score of 7.40 with 143 *d.f.* results. This difference is significant beyond the .01 level. Sum to stopping level consequently appears to be a better predictor than stopping level.

The fourth hypothesis is somewhat more difficult to settle since comparisons are not available. That is, how closely should estimated levels based on word lists agree with the actual reading of extended discourse before they are acceptable as estimates? Table 2 indicates that if one is willing to accept the true functional level plus or minus one *level* (e.g., PP, P, 1, 2-1, 2-2, 3-1, 3-2, 4, 5, 6, 7) one's instructional level estimate would be correct in approximately 80% (10.3% + 41.8% + 27.4%) of the cases studied.

TABLE 2  
COMPARISONS OF INSTRUCTIONAL LEVEL ESTIMATES TO  
FULL SCALE SRI PLACEMENTS

	One Level Below	On Level	One Level Too High
Grade 1	2	14	8
Grade 2	1	10	9
Grade 3	1	3	10
Grade 4	4	10	3
Grade 5	5	10	6
Grade 6	2	14	4
	15/146	61/146	40/146
	10.3%	41.8%	27.4%

Since readability formulas used for determining the difficulty of reading materials (and subsequently for matching of readability and reading level) are seldom more accurate than plus or minus one grade level, one may consider such a range of error to be acceptable for classroom estimation purposes.

A rule of thumb may hence be applied: Instructional Level Estimate = stopping level - one level; Frustration Level Estimate = stopping level; and Independent Level Estimate = stopping level - four levels (or the lowest level on the SRI). It should be reiterated that this procedure is intended only for quick placement and does not provide the wealth of diagnostic information that the full-scale SRI provides.

*Discussion and Implications*

Frequently it becomes necessary for the classroom teacher or reading clinician to estimate a tentative reading level for immediate instructional purposes. Under these circumstances, graded word lists are often used. This study was undertaken to clarify the soundness of such a procedure.

It has been demonstrated that a highly significant relationship exists between word list reading and reading of extended discourse. While this is not surprising, the predictive validity for estimating functional reading

levels has not been widely publicized. Furthermore, a high relationship among scores does not provide information about the calibration required. This investigation suggests that Functional Reading Level Estimate = stopping level - one level may be an adequate criterion to use with the SRI word list until further information is gathered by the teacher to reject or confirm the tentative placement.

The above generalizations should not be extended to other word lists until their relationships to specific materials are ascertained. While various word lists result in scores that correlate moderately, the absolute grade equivalents may be significantly different (Froese, 1971).

This study also indicated that the procedure "sum to stopping level" was a slightly better predictor of functional reading levels than stopping level alone and may consequently be a useful refinement for research purposes.

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## The Disturbing Child: What You See is What You Get?

*The ratings of special education teachers, regular education teachers, and teachers-in-training were compared with regard to the relative disturbingness of certain behaviors. The results indicated that regular teachers found the behaviors more disturbing than either of the other groups. The implications of these results are discussed with regard to ecological intervention strategies and teacher training practices. (Dr. Algozzine is Assistant Professor in the Department of Special Education at the University of Florida, Gainesville.)*

Pate (1963) suggested that a child was emotionally disturbed when his behavior was inappropriate and unacceptable to his peers and adults. Such definitions of emotional disturbance stress that the condition exists within the child because the child frequently exhibits an abnormal amount of disturbed behavior. Screening and identification procedures typically rely on checklists and behavior rating scales as the primary means of assessment. This procedure often generates negative consequences for children (i.e., negatively self-fulfilling prophecies, mis-diagnoses, etc.) and has received some criticism (Algozzine, 1976; Reinert, 1976). As an alternative to emphasizing the behavior of the child as being disturbed, Rhodes (1967) offered an ecological explanation for the existence of emotional disturbance. This perspective stresses the interaction between the child's behavior and that of others in the child's ecosystem. He suggested that an individual's behavior may be viewed as disturbing, and as such create an imbalance in the interactions of that person. Rhodes' model has received some support (Reinert, 1976; Rhodes & Tracey, 1972; Swap, 1974) but has only recently been empirically investigated.

Herr, Algozzine & Eaves (1976) have shown that the disturbingness of behaviors can be decreased by an intensive experience with exceptional children. Algozzine (1976) has demonstrated that individuals' attitudes toward behaviors vary as a result of their training and experiences.

The purpose of this investigation was to attempt to determine if regular teachers, special education teachers, and post-student teaching teachers-in-

training held the same attitudes regarding the disturbingness of behaviors characteristic of emotionally disturbed children. The null hypotheses of the study state that there are no differences between the groups' ratings of how disturbing these behaviors were, or between the four dimensions of disturbing behaviors.

### *Method*

#### *Subjects*

Twenty-five teachers of regular education classes from several elementary schools in a large metropolitan area, twenty-five special education teachers from the same city, and twenty-five advanced undergraduate students of special education were randomly selected to participate in this investigation. The public school teachers had all been employed for at least one year, and the students had all participated in student teaching; all were considered to be experienced with regard to working with children.

#### *Dependent measure*

A modified version of the Behavior Problem Checklist (Quay & Peterson, 1975) had been previously administered to several hundred subjects in an attempt to validate its use as a Disturbing Behavior Checklist (Algozzine, 1976). This scale appears to be a valid and reliable measure of the relative disturbingness of certain behaviors; social facility, social defiance, physical symptom and socialized delinquent dimensions were represented by the scale. The reliability coefficients (KR20) of the four factors ranged from .62 to .93.

#### *Procedure*

The seventy-five subjects were asked to complete each item of the Disturbing Behavior Checklist (DBC) with regard to how disturbing each item was in working with children. Since the four factors of the DBC have different numbers of items, factor means were derived for each subject by dividing the total score on the factor by the number of items in the factor. A two-factor analysis of variance with repeated measures was utilized to determine if differences in the disturbingness of items existed between groups of subjects and dimensions of the DBC. Because of the investigative nature of this study, stringent criteria for significance were judged necessary. The level of rejection was set at .01 and an additional criterion of at least a 0.5 unit difference between means was established to test the significance of any obtained difference. The latter criterion represented a relative difference of one-half of the distance between points on the dependent continuum, and as such was judged representative of a meaningful change in responses.

### *Results*

The means and standard deviations for the subjects' responses to the disturbing behaviors are presented in Table 1. Analysis of variance results indicated significant main effects ( $p < .01$ ) for the subject group and DBC factors. Analysis of overall means indicated that the regular teachers ( $\bar{X}=3.2$ ) found the behaviors more disturbing than either the special teachers ( $\bar{X}=2.6$ )

TABLE 1  
MEANS AND STANDARD DEVIATIONS OF RESPONSES TO THE  
DISTURBINGNESS OF FACTORIAL BEHAVIORS

Group <sup>a</sup>	DBC Factor			
	Social Facility	Social Defiance	Physical Symptoms	Socialized Delinquent
Special Education Teachers	2.4	3.2	2.4	2.4
	0.6	0.9	0.8	0.9
Special Education Students	2.6	3.1	2.6	2.4
	0.6	0.5	0.8	0.7
Regular Class Teachers	3.0	3.7	3.1	3.0
	0.5	0.5	0.7	0.8

<sup>a</sup> For each group, *N* = 25.

or the students ( $\bar{X}$ =2.7); the significance of this difference was established by both criteria for this study. Similar results were obtained in analyzing social defiance in the disturbingness of the factors. The social defiance behaviors (Factor II,  $\bar{X}$ =3.4) were significantly more disturbing ( $p < .01$ , difference  $> 0.5$ ) than those for the other factors (I,  $\bar{X}$ =2.7; III,  $\bar{X}$ =2.7; IV,  $\bar{X}$ =2.6).

TABLE 2  
ANALYSIS OF VARIANCE SUMMARY TABLE FOR DISTURBINGNESS OF  
BEHAVIORS BY GROUPS OF TEACHERS AND DBC FACTORS

Source	MS	df	F
<u>Between subjects</u>			
Groups	9.606	2	8.49*
Error	1.131	72	
<u>Within subjects</u>			
Factors	9.390	3	32.37*
Group X Factors	0.226	6	0.78
Error	0.290	216	

\*  $p < .01$

*Conclusions and Implications*

The null hypotheses of this investigation were not accepted; that is, the groups *did* significantly vary with regard to the disturbingness of the behaviors and one dimension of those behaviors (i.e., socially defiant) was more disturbing than the others. These results suggest that regular teachers may have a more limited tolerance for disturbing behaviors than either special education teachers or special education teachers-in-training. Rubin and Balow (1971) have suggested that the schools accepted a very limited



range of behaviors when that range was defined by regular teachers. The question of whether this limited tolerance for behavior can result in disturbance remains to be answered; however, it has been shown the individuals found various behaviors differentially disturbing. This may be due to differential experience with special children or to more restrictive background and training. In either case, recognizing that the difference exists is the first step toward reducing it.

The schools do serve a socializing function. It is, therefore, understandable that socially defiant behaviors would be viewed as most disturbing by teachers and teachers-in-training who, in fact, serve as significant agents in the socialization process. These results suggest that it may be necessary to develop training programs which incorporate methods of reducing the behaviors in children, as well as changing teachers' attitudes toward those behaviors. Ecological theorists further imply that effective treatment must consider the child as well as ecosystem members.

If behaviors which are exhibited by children are differentially disturbing to groups of teachers, it may also be that they are differentially disturbing to other types of people. These results generally suggest that it may be possible and profitable to match a child who exhibits certain disturbing behaviors with a teacher who is tolerant or accepting of those same behaviors. This study represents a portion of the groundwork necessary for research attempts to validate such a matching hypothesis. Until that occurs, education is left with the possibility that a child's behavior may be disturbing simply because someone sees it as disturbing.

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## Family Socialization and Adolescent Behavior: A Canonical Analysis

*Longitudinal data collected on English adolescents were used to examine the extent to which socialization processes in the family were related to the cognitive and affective behavior of the adolescents. The socialization processes were defined in terms of a set of proximal social-psychological variables: parent's aspirations for the adolescent, literacy of the home, parent's interest and support, and a proxy parent-child interaction variable, the reading ability of the adolescents as well as distal structural indices such as social status indicators. Six measures of adolescent behavior were examined: English achievement, arithmetic achievement, nonverbal intelligence, educational and occupational aspirations, attitudes toward school, and self-esteem.*

*Multiple regression analysis indicated that the socialization indices accounted for a large percentage of the variance in the English, arithmetic and aspiration scores, and a low to moderate percentage of the variance in the other behavior scores. Canonical analysis was used to examine, in greater detail, the covariate structure of the relation between the socialization indices and the behavior variables and it was found that the socialization indices were related differentially to the behaviors. In general, the more proximal social-psychological socialization indices were the best predictors of adolescent behavior, but for an enriched understanding of the relationships, it was necessary to include an analysis of the distal structural indices, especially for the girls. The findings provide support for the proposition that the processes of technical socialization and moral socialization in the family are interdependent. (Dr. Marjoribanks is Professor of Education at the University of Adelaide, Australia; Dr. Walberg is at the University of Illinois at Chicago Circle.)*

In his construction of a theoretical perspective to examine socialization processes, Bidwell (1972, 1973) proposes that socialization can be thought of as having two principal aspects. The first is technical socialization which

involves developing intellectual and motor skills and learning items of information and thought that organize them, while the second aspect is moral socialization which is related to the firmness with which a person holds a belief, a value, or an attitude. Although the processes of technical and moral socialization are considered to be interdependent, there is a paucity of research which has examined the relations between family socialization and both the cognitive and affective behavior of adolescents. Generally, socialization studies have concentrated on analyzing either cognitive behavior (e.g., Bing, 1963; Dave, 1963; Vernon, 1969; Marjoribanks, 1972; Walberg & Marjoribanks, 1973) or the affective behavior of adolescents (e.g., Strodbeck, 1958; Rosen, 1959; Weiss, 1969; Kerckhoff & Huff, 1974). Other limitations of much of the research on family socialization and adolescent behavior are related to the use of cross-sectional data to infer longitudinal relationships among the variables and the failure of studies to examine the interrelationships between global indicators of socialization processes, such as social status characteristics, and more social-psychological measures of the processes. Bernstein and Davies (1969) and Halsey (1975), for example, suggest that any treatment of the family needs to include an analysis of both structural social variables and process characteristics. Halsey proposes that "it is essential to insist that the effect of social class on educational experience is not to be thought of as one factor from which parental attitudes and motivations to succeed are independent" (p. 17). He suggests that a theory which explains that adolescent behavior as the outcome of a set of individual attributes has lost the meaning of those structural variables which we know as class. Similarly, in a study of the status attainment of adolescent boys, Wilson and Portes (1975) conclude that while much research has emphasized the importance of social psychological predictors of behavior, it is essential that structural variables such as parental status not be neglected.

In the present study, an analysis is made of the extent to which indicators of the socialization processes in families are related to both the cognitive and affective behavior of adolescents. An attempt is made to overcome many of the limitations of prior research by (a) using longitudinal data, (b) using multiple measures of the cognitive and affective behaviors of adolescents, and (c) defining the socialization processes in the family in terms of both distal indicators such as father occupation, family income and family size, as well as more proximal social-psychological measures such as parents' aspirations for their children, literacy of the home, and parents' interest in education.

### *Method*

#### *Subjects*

The data for the study were collected as part of a national survey of school children in England (Plowden, 1967), and then collected as part of a follow-up study on the same children, four years later (Peaker, 1971)

In the Plowden study the sampling procedure had two stages. First, a stratified random sample was taken from all types of government supported elementary schools in England which resulted in the selection of 173 schools. In the second stage of the sampling procedure, a systematic sample of children was chosen from the schools, producing three age cohorts each of



approximately 1,000 children (see Plowden, 1967, volume 2, pp. 147-150). The average age of the senior cohort was approximately 11, of the middle group, eight, and of the junior group, seven. However, for the purpose of the present study, only the children in the senior cohort were appropriate. The final sample included 396 girls and 383 boys who, at the time of the second survey, were in their fourth year of secondary school.

### *Measures*

*Family socialization indices.* In the first national survey a structured interview schedule was used to gain information about the family environments of the children. The parents were interviewed by government social survey interviewers with each interview lasting, on the average, an hour. For the present analysis, indices were used to assess the structural variables of father occupation, family income, father education, family size, birth order of the adolescent and physical amenities of the home. The social-psychological indices were labelled parents' aspirations for the child, literacy of the home, and parents' interest and support. Also, in the first survey the reading performance of the adolescents was tested using the Watts-Vernon reading test. As many previous studies have shown that measures of parent-child interactions account for large percentages of the variance in the reading achievement of children, it was decided to use the reading scores as a proxy variable to assess in greater detail the socialization processes in the family. The total set of socialization indices used and the items used to assess the social-psychological variables are presented in Table 1.

*Cognitive performance.* In the follow-up national survey, the cognitive performance of the children was assessed using three measures which all have acceptable reliability estimates: the Alice Heim nonverbal intelligence test (AH4), the Watts-Vernon English comprehension test, and the Vernon graded arithmetic test.

*Affective characteristics.* In the follow-up survey, three scales were constructed by the National Foundation for Educational Research in England to assess adolescents' education and occupational aspirations, attitudes toward school, and self-esteem. The scales which are of a Likert-type format and of 10 items each are similar to those that have been used in many previous studies. In general, high scores on the questionnaires meant that an adolescent was characterized by a negative commitment to schooling which consisted of (a) a lack of aspirations, (b) negative attitudes toward school, and (c) low self-esteem. A negative commitment indicated that an adolescent (a) had no desire to stay on at school, take university examinations, undertake tertiary education nor planned to study towards an occupation of high social status, (b) didn't think that it was important to do well in schoolwork, was not a hard worker in class, and was not active in class and school activities, and (c) thought that he wasn't a success in school, didn't have much to be proud of, thought that other people did things better than he did, was not satisfied with himself, and didn't think that he had many good qualities. Unfortunately, the data which were obtained from the National Foundation for Education Research in England were in a form which did not permit the reliabilities of the attitude scales to be estimated.

TABLE 1  
SOCIALIZATION INDICES AND THEIR RELATED ITEMS

Socialization Indices	
Structural variables	
Father occupation	Family size
Family income	Birth order of adolescent
Father education	Physical amenities of home
Social-psychological variables	
Parents' aspirations for child	
Items:	Whether a particular type of secondary school was desired; further education was wanted for child; parents wanted child to take university entrance examinations
	Type of job desired for the child
	Preferred age for child to leave school
Literacy of home	
Items:	Whether the mother or father belonged to a library; the mother read; the father read; the child read at home apart from schoolwork; the child had library books at home
	The number of books in the home
Parents' interest and support	
Items:	Whether the parents played with the child in the evenings; did things with the child at weekends; took an interest in how the child was progressing at school; had visited the school
	Whether the husband helped with caring for the child in the home
	How many hours a week the husband spent away from the family
Reading achievement at time of first survey	
Items:	Proxy variables for family-child interactions

Therefore the study examined relations between the socialization processes of the family which were defined in terms of father occupation, family income, father education, family size, birth order, physical amenities of the home, parents' aspirations, literacy of the home, parents' interest and support, the early reading achievement of the adolescent, and six measures of adolescent behavior: nonverbal intelligence, English achievement, arithmetic achievement, educational and occupational aspirations, attitudes toward school and self-esteem.

Results and Discussion

The zero-order correlations presented in Table 2 indicate a set of moderate to strong relationships between the socialization indices and the cognitive and affective behaviors. In general, the socialization indices have stronger relationships with the academic achievement measures than with the intelligence and affective scores, which supports the findings of much

TABLE 2  
ZERO-ORDER CORRELATIONS BETWEEN THE SOCIALIZATION AND  
BEHAVIOR VARIABLES

	Behavior Variables					
	Intelligence	English	Arithmetic	Aspirations	Attitudes	Self-Esteem
<u>Boys</u>						
Father Occupation	20	26	23	-21	-15	-13
Family Income	10	17	17	-23	--	--
Father Education	18	25	27	-26	--	-13
Family Size	-17	-23	-18	17	--	09
Birth Order	--	14	--	--	--	--
Physical Amenities	09	19	18	-18	-14	-10
Parents' Aspirations	21	40	40	-37	-12	-14
Literacy of Home	31	40	34	-37	-13	-14
Parents' Interest	17	28	27	-28	-17	-14
Reading Achievement	24	46	40	-39	-12	-13
<u>Girls</u>						
Father Occupation	23	30	37	-33	-18	-20
Family Income	23	26	30	-36	-10	-19
Father Education	17	23	31	-31	--	-16
Family Size	-09	-24	-23	27	16	12
Birth Order	--	16	--	-15	--	-10
Physical Amenities	12	20	21	-18	-14	--
Parents' Aspirations	37	44	52	-51	-16	-14
Literacy of Home	24	50	40	-40	-12	-19
Parents' Interest	10	20	21	-22	--	-20
Reading Achievement	39	66	60	-58	-27	-26

Note: Decimal points have been omitted.  
Only those correlations significant beyond the .05 level are presented.  
High scores on the affective characteristics indicate low aspiration,  
attitude and self-esteem scores.

previous research (e.g., Dave, 1963; Brookover & Thomas, 1964; Ausubel & Sullivan, 1970; Evans & Anderson, 1973; Jensen, 1973a, 1973b). Also the moderate negative relationships between family size and the behavior measures replicates prior research (e.g., Anastasi, 1956; Cicirelli, 1967;



Kellaghan & Macnamarra, 1972; Dielman, Barton & Cattell, 1974; Marjoribanks, Walberg & Barga, 1975).

When the socialization indices were combined into a set of predictor variables they accounted for a large percentage of the variance in the English, arithmetic and aspiration scores and a low to moderate percentage of the variance in the intelligence, attitudes and self-esteem scores (see Table 3). The findings suggest that the socialization processes operating in the family have a differential impact on measures of the cognitive and affective behaviors of adolescents. But the analysis of the zero-order and multiple correlation provides only a partial understanding of the covariate structure of the socialization indices and the behavior variables. In order to obtain a more enriched understanding of the covariate structure, canonical correlations between the socialization indices and behavior variables were examined. Just as multiple correlation is a generalization of simple correlation in that it relates several predictors to a criterion, canonical correlation is a generalization of multiple correlation in that it relates several predictors to several criteria. Also, just as multiple correlation yields a set of linear weights for the predictors to form a composite variate that is maximally correlated with the criterion, one or more pairs of canonical variates for the predictors and criteria are calculated that maximize the simple correlation between the paired composite variates of each set. Well worked out inferential tests are available to test the significance of successive canonical correlations and the variates may be characterized by calculating the simple correlation ("loading" as in factor analysis) between the composite variate and the original set of variables (e.g., Bock & Haggard, 1968; Darlington, Weinberg & Walberg, 1973).

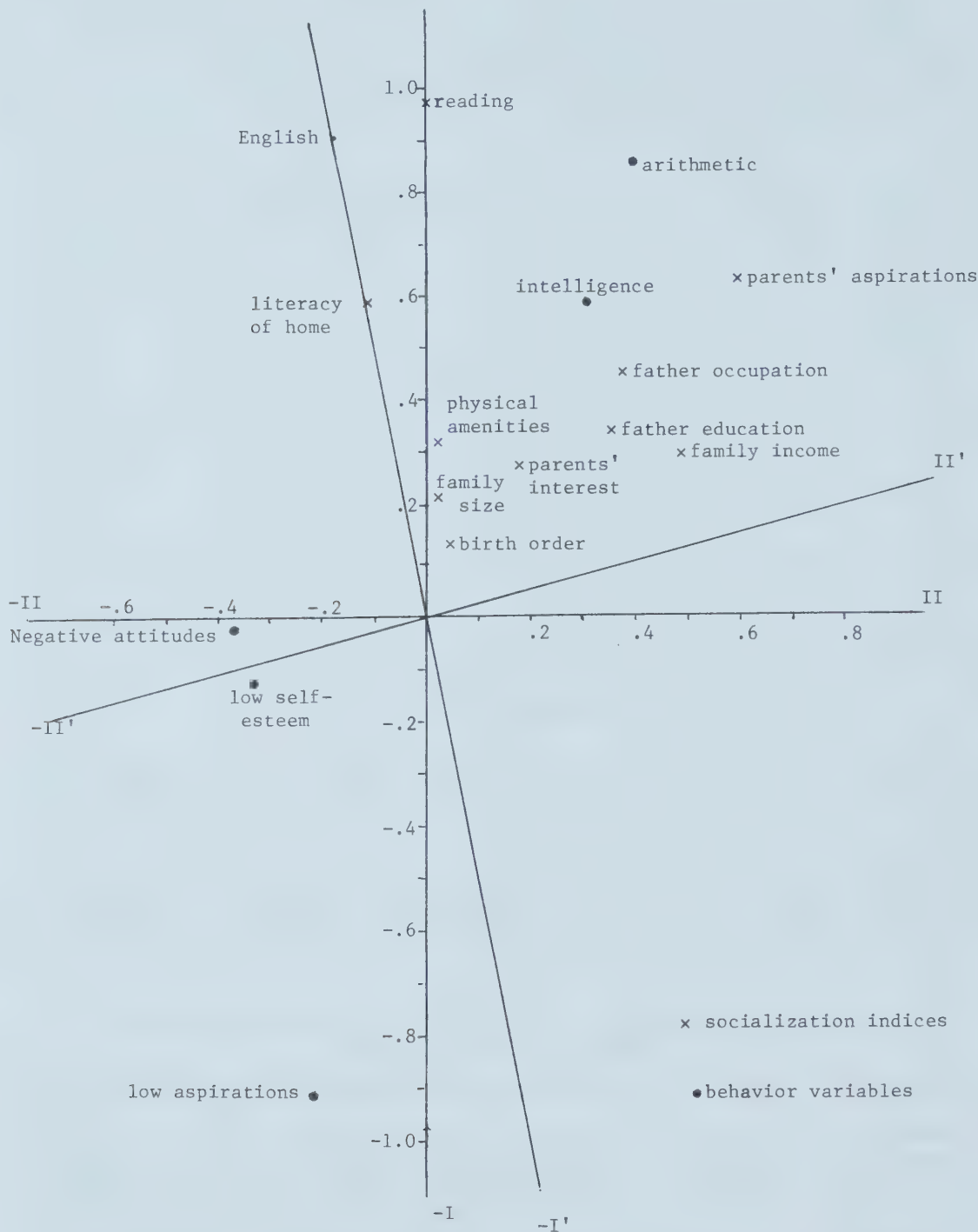
The canonical analysis revealed that for the girls the first two correlations, .870 and .351, were significant (probabilities less than .001). In Figure 1 the canonical loadings have been plotted and for a more interpretable solution, the variates have been rotated orthogonally through English achievement. With respect to the first canonical variate, the loadings suggest that English achievement, arithmetic achievement, aspirations of adolescents and, to a lesser extent, nonverbal intelligence are

TABLE 3  
MULTIPLE CORRELATIONS OF BEHAVIOR VARIABLES WITH  
SOCIALIZATION INDICES

Behavior Variables	Boys		Girls	
	Multiple Correlation	Percentage of Total Variance	Multiple Correlation	Percentage of Total Variance
Intelligence	.51 <sup>a</sup>	26.17	.52	27.26
English	.86	73.10	.84	71.38
Arithmetic	.71	50.26	.76	57.23
Aspirations	.73	53.11	.75	56.05
Attitudes	.30	9.00	.34	11.57
Self-esteem	.29	8.30	.38	14.14

<sup>a</sup> All correlations significant beyond .01 level.

FIGURE 1  
CANONICAL LOADINGS OF SOCIALIZATION INDICES AND BEHAVIOR  
VARIABLES: GIRLS



related strongly to the early reading performance of the adolescent, literacy of the home, parents' aspirations and father occupation. That is, poor cognitive scores and the lack of educational and occupational aspirations of girls are related to their poor reading ability, a low level of literacy in homes in which fathers have low occupational levels and in which parents have low aspirations for their daughters. By finding a strong association between the aspirations of parents and the girls, the study replicates the results of

research which has examined the influence of "significant others" on the behavior of adolescents (e.g., Rehberg & Westby, 1967; Sewell & Shah, 1968; Sewell, Haller & Portes, 1969; Kandel & Lesser, 1969; Woelfel & Haller, 1971; Williams, 1972). After removing the variance of the first canonical variate from predictors and criteria, the loadings on the second variate indicate that arithmetic, nonverbal intelligence and the three affective behaviors are related to parents' aspirations, family income, father occupation and father education, but not related strongly to earlier reading achievement, literacy of the home and the remainder of the socialization indices.

The analysis of the two canonical variates suggests that the cognitive and affective behavior of girls is related differentially to the socialization indices. English achievement is related strongly to reading performance, literacy of the home, and the social status of the family while arithmetic achievement and, to a lesser extent, nonverbal intelligence are associated with parents' aspirations and the social status of the family. Parents' aspirations, social status of the family and literacy of the home are related strongly to a girl's educational and occupational aspirations and, to a lesser extent, associated with the self-esteem and school attitude scores. Thus the relations between the socialization indices and the behavior variables for the girls provide support for the proposition that the technical and moral socialization processes in families are interdependent.

When the data for the boys were examined, only one canonical correlation, .877, was significant (probably less than .001). With respect to the canonical variate which is presented in Figure 2, the loadings suggest that English and arithmetic achievement, aspirations and, to a lesser extent, nonverbal intelligence, school attitudes and self-esteem are related to the proxy socialization index of reading performance, parents' aspirations and literacy of the home. Unlike the relations for the girls, the social status (father occupation, family income, father education) of a boy's family was not a significant predictor of the behavior variables. Instead it appeared that the influence of the structural variables was mediated by the more proximal social-psychological measures.

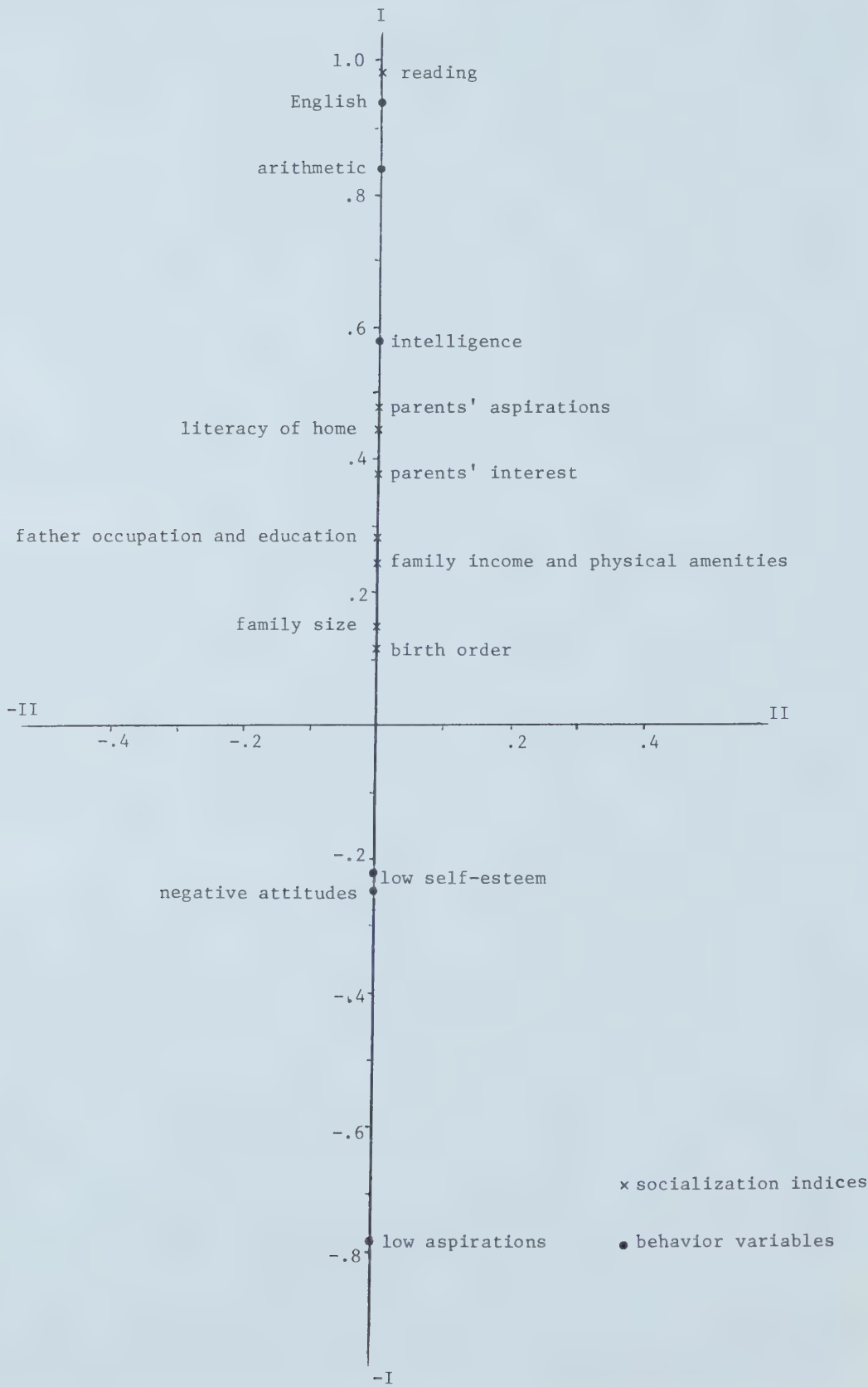
When the canonical correlations for the girls (.870 and .351) were cross-validated in the boys' sample, correlations of .850 and .140 were obtained while the correlations for the boys (.877 and .207), when cross-validated in the girls' sample, were .870 and .080. The stability of the cross-validated relations between the socialization indices and the behavior variables provide confidence for the validity of the relationships.

In general, the findings indicate that moderate to large percentages of the variance in the cognitive and affective behaviors of adolescents are associated with assessments of the socialization processes in the family. While the proximal socialization indices have greater predictive validities than the structural variables, the canonical analysis indicates the importance of including the social status variables, especially for girls, in the analysis. The greater complexity of the relations for the adolescent girls provides some support for Vernon's (1969) contention that "cause-effect relationships are on the whole more straightforward in the male-sex" (p. 8).

By analyzing longitudinal data and using multiple measures of socialization processes and adolescent behavior, the present study has



FIGURE 2  
CANONICAL LOADINGS OF SOCIALIZATION INDICES AND BEHAVIOR  
VARIABLES: BOYS



moved beyond much of previous research which has examined the socialization correlates of adolescent behavior. Also, canonical analysis allows for a greater understanding of the interrelations between the socialization processes of the family and measures of cognitive and affective behavior. If our understanding of adolescent development is to be enriched further, we need more research which investigates relations between multiple measures of adolescent behavior and socialization processes that operate in the family, neighborhood and classroom and which are defined in terms of both the structural and social-psychological features of the different environments. Only after such research has been undertaken will we begin to understand the complexity of the interrelationships between technical and moral socialization and adolescent behavior.

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